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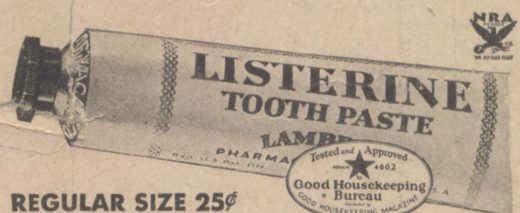

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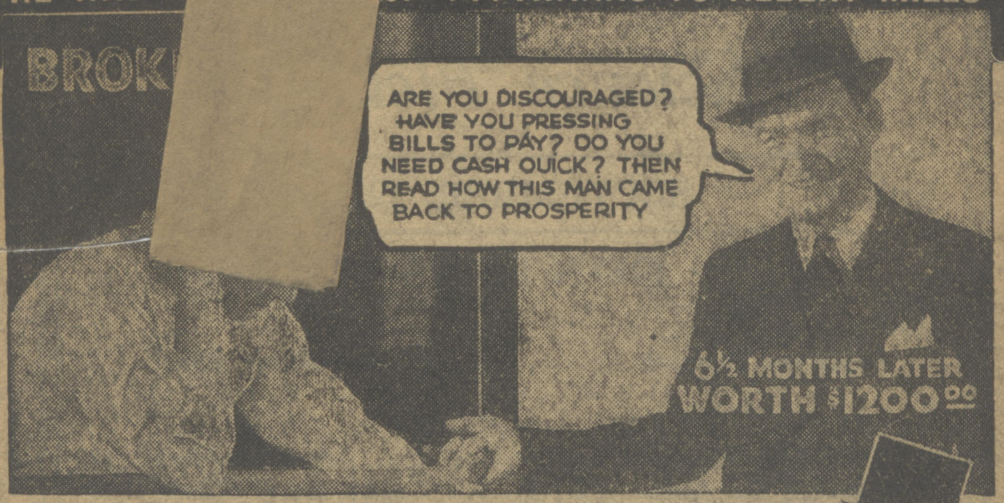

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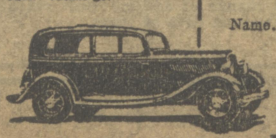

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AMAZING STORIES

Science Fiction

Vol. 9 SEPTEMBER, 1934 No. 5

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29x5.25-19		2.95	1.15
30x5.25-20		2.95	1.15
31x5.25-21		2.95	1.15
28x5.50-18		3.25	1.15
29x5.50-19		3.25	1.15
30x5.00-19		3.40	1.15
31x5.00-19		3.40	1.15
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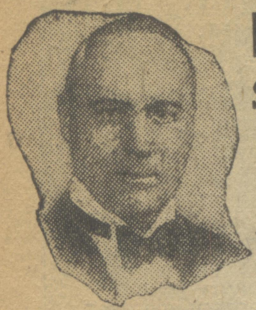

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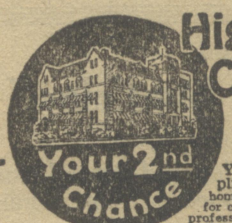

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29x4.50-20		2.35	0.85	30x3½	2.35	0.75	33x4½	3.45	1.15
30x4.50-21		2.40	0.85	31x4	2.95	0.85	34x4½	3.45	1.15
28x4.75-19		2.45	0.95	32x4	2.95	0.85	30x5	3.65	1.35
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31x5.25-21		3.25	1.15	32x6 (8)	7.95	2.75	36x8	12.45	4.25
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AMAZING STORIES

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T. O'CONOR SLOANE, Ph.D., *Editor*

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Extravagant Fiction Today . . . . . Cold Fact Tomorrow

Paper and Printing

By T. O'CONOR SLOANE, Ph.D.

THE first writing, it is fair to say, was executed with hammer and chisel. Then the seals and signets of the Egyptians came into use and, literally speaking, printing made its entry into the world. Writing developed and great quantities of papyrus was covered with real written matter. For temporary purposes some kind of wax-covered tablets were used, on which the words could be inscribed with a metal stylus or pointed instrument. Papyrus was written on with some kind of ink and a brush or eventually perhaps with a real pen made from a hollow reed. Papyrus, as we have seen, was extremely durable, and it was very strong in the line of its length. The firm pith can be cut up into a number of filaments like threads, and these are very strong and give it strength in the direction of its length. But crossways it yields to any strain and readily splits and divides and subdivides. This was why the product, papyrus, was made by cementing, perhaps with only the sap of the plant as adhesive, two layers of the pith crossing each other at right angles. Such papyrus was very strong, far stronger and more durable than paper. It seemed to defy the destruction of decay and of time.

It is said that the papyrus fibre was used to make cordage. The pith is so smooth and uniform that it can be cut into thin layers for writing on, or it can be divided into fibres of considerable strength, and as thin as required. The latter fibres can be made into rope.

These things go back many centuries in time. The epics of Homer are placed at some nine centuries before the Christian era. But they show most advanced culture. They are in correct poetical meter of the most exact description, for the Greek and Latin authors were not allowed to use the *vers libres* with which some modernist writers amuse themselves, perhaps more than they do their

readers. The ancient poetical meters, were almost like problems in mathematics. Even as late as the year A. D. 1000, the Icelandic sagas used such complicated meter that it requires a special study to translate them. The ancient meters of Irish poetry were extremely difficult to produce—they exacted an almost mathematical exactness.

This is all written for a purpose. The Iliad and Odyssey of Homer tell us that centuries before their day, elaborate literary productions were evolved and preserved on papyrus for posterity to puzzle over, to study and to admire. Our civilization, even if it is far ahead of the old world in mechanics and discoveries in natural science, cannot surpass, although perhaps it can equal, the literary work of authors who wrote nearly thirty centuries ago. And what a world of advanced civilization may be predicted from the fact that hieroglyphics go back more thousands of years into the past.

It is impressive to read about the predecessor or forerunner of the great Stone Mountain, Tennessee, sculptures of actors in the Revolution and in the War between the States. The predecessor is the famous inscription on the face of the mountain at Behistun in Persia, at a height of about 500 feet from the base of the great cliff. Darius the Great had inscribed thereon the records of his achievements in the great rebellion he had to contend with. Above the inscriptions, which are in three languages, is the sculpture of the Monarch, putting his foot on the prostrate body of Guatama, the rebel, with a number of other figures. These inscriptions and sculptures date back to about 520 B. C. some twenty-five centuries before "Stone Mountain's" sadly uncompleted figures of the great ones in past history of the United States, of the 1776-1780 and 1861-1864 epochs.

The above may seem like a digression but the texts of the Darius inscriptions of the Behistun sculptures have been deciphered, and have added to our records of the old Persian history.

The attempts to reproduce writing mechanically in page form, first took the direction of block-printing. A full page of a book would be engraved on a block of wood and from this an impression on paper of vellum would be taken. This was used by the Chinese as far back as the ninth century of the present era. In the eleventh century the Chinese did printing from type. Their language required a great number of letters or characters and this operated against the use of type by them.

After the days of inscriptions on stone, writing baked upon clay, manuscripts written with wonderful skill and the best ink that perhaps man ever produced, with illuminated margins and little pictures technically called miniatures, all these manuscripts being written and painted on vellum, we come to the age of paper. The word paper is of course derived from papyrus of which it was the direct successor. In the papyrus plant, nature very obligingly gave what may be termed massive paper. All that was needed was to cut it into thin layers and paste it together in two layers, one crossing the other at right angles. But when it came to making paper, the first thing to be done was to get it into the form of finest possible division. Cotton fibre was one of the first materials for paper; rags were torn all to pieces, and virtually ground up so as to almost get them into a condition of a powder. These rags were suspended in water, their low specific gravity and their fine division prevented them from settling rapidly to the bottom of the vessel containing them. A sieve of brass wire of very fine apertures would be used to dip into the suspended fibres and

as it was lifted out it would pick up a quantity determined by the depth to which it would be filled. A rim or frame controlled this depth as it rested on the wire sieve; all of which is, of course, simple enough. The next process was to get it so thoroughly mixed that a species of felting would take place and this was done by agitating the sieve, shaking it from side to side, and eventually lifting it out of the fluid so that it would drain and the wire would be covered with a sheet of very fragile paper.

To-day, the finest kind of paper is made from cotton rags, rag paper it is called and it is made by hand, as described above, and is considered the very finest kind of paper.

This, however, was a very slow process, which is evident from the above short description, each manipulation of the sieve producing only one sheet of paper which might be something over three feet square. But now paper has to be made in great quantities and for the operation of the modern printing press it has to be in rolls, thousands of feet in length. In the last years of the 17th century a machine was invented for making paper mechanically. This is the famous Fourdrinier paper-making machine which has been, in the course of many decades, made larger and larger, improved and changed, so that it can turn out paper in lengths entirely dependent on how fully it is supplied with the mixture of water and fibre and on how long it is kept going. To France goes the credit for this invention. It was introduced into England early in the nineteenth century by the brothers, Fourdrinier. The latter name has attached itself to it.

It is a very large machine and has many minute as well as larger parts. It has an endless wire sieve operated on rolls so as to be in constant motion, never stepping, and upon one end of this endless wire belt, as it may be termed, which may be as much as fifty feet long, the fibre, which may be of rags, but of which unfortunately the greater part is now finely divided wood, is delivered from a tank in which it is kept thoroughly mixed with water. As it goes down the line it has to be felted or thoroughly mixed so as to give it consistency. In the hand manufactured paper this was effected by shaking the sieve. In the Fourdrinier machine the wire gauze belt or endless sieve as we may call it, is kept in constant transverse agitation or shaking. As it goes down the line, the water slowly drains out of it and the constant agitation felts it together, so that it is quite firm. Various substances may be added to it such as glue or size to make it stronger or clay or some equivalent can be added to give it weight. When it reaches the end of the belt of wire gauze the water will have pretty well left it and it will have become thoroughly felted, and is now soaking wet paper. It leaves the wire screen and passes over hot rolls by which it is dried and when it is completely dry, it is made into rolls of many pounds weight.

A true art of writing, ahead of the present day, was developed in the convents, where the monks produced volume after volume, beautifully written, with wonderful ink and illuminated by colored and gilded borders and miniatures, in artistic little paintings, in beautiful color, which seemed to be exempt from liability to fade. The old Icelandic sagas were written by hand in a very characteristic script sometimes on vellum, and sometimes on paper. One peculiarity about manuscripts of those days not far from the years of the 12th to the 15th century, was that, while they were beautifully regular in chirography, they are not easy to read. The old scribes used to save themselves a certain amount of la-

bor and time by using standard abbreviations and that fact doesn't help any in the reading.

And in the fifteenth century we come to see what seems to be a gap in the history of literature in its mechanical aspect, for printing had now been invented.

Centuries before oriental nations had printed from wooden blocks; on these the letters were carved so that it would take quite a time to get a single page-block completed and from these blocks books were printed. It is about the year 1454 that we come across a large book, the Vulgate Bible, which is known to have been printed from type and from that day on printing from metal types has gone on until more "best sellers" are produced in a year of the present era, than really "best books" were printed in the whole of the fifteenth century. A number of names are familiar as the inventors of printing from type, but the mystery is that the earliest books which are known to have been printed from movable type are so large and so well done, that it seems impossible that they should have been the work or invention of a single man in the span of but a few years.

When we think of types, one for each letter and symbol, to be set by hand, such as used in old times and as used to some extent to-day, it appears to be a very wonderful product. It has to be of rigorous accuracy of dimensions. Its body must be perfectly square in sections so that when a line of individual type is set up to go to the press, the bodies of the type must be of mathematically the same height, they must lie so snugly against each other that there is absolutely no shifting or rocking, and the faces of the letters must lie in a mathematically exact plane. It is true that the printer can overcome some slight irregularities of areas, not of individual type, by putting paper under parts of the type or putting paper as a padding in the part of the press that covers the paper as it lies upon the face of the type, but these operate in a very small degree. When we consider the multitude of type which were required in the early days of printing and which were cast largely by hand, one by one, it seems wonderful that the essential, absolute necessary exactless of size could have been attained so quickly that the long books of those early days could have been the first products of the new art. In other words it is perfectly fair to consider that the invention of movable type for printing is of decidedly uncertain date and the inventor of it, if it was one man, can hardly be supposed to be known. It does not seem possible that one man could have invented type and then at once proceeded to produce some kind of a printing press and present the world with so beautifully executed a book as the Mazarin Bible of the year 1454.

Just as the early manuscripts may be safely pronounced superior to those of the present day, the early type are so attractive that some of the best examples of printing go back to the sixteenth century.

THE END

The Moon Pirates

By NEIL R. JONES

We are sure that our readers will be glad to read a story by this author. They will remember the same author's Professor Jameson series, which met with high approval and which are due for more installments. "The Moon Pirates" is full of action and develops some quite original treatment of the subjects of space adventure.

A NEW SERIAL

Part I

CHAPTER I

Aboard the Interplanetary Flyer

JAMES C. CLARKFORD, wealthy, manufacturer of middle-age, snapped off the television screen in the back of the seat ahead of him, removed the metal sound-cap from off his head and settled back comfortably against the upholstered cushions of the interplanetary liner which was coursing upon its regular, prescribed route to Venus. Clarkford and his daughter had boarded the interplanetary flyer that morning, and having been over the route many times before, he was becoming just a bit bored, wishing that something would happen to stir up excitement.

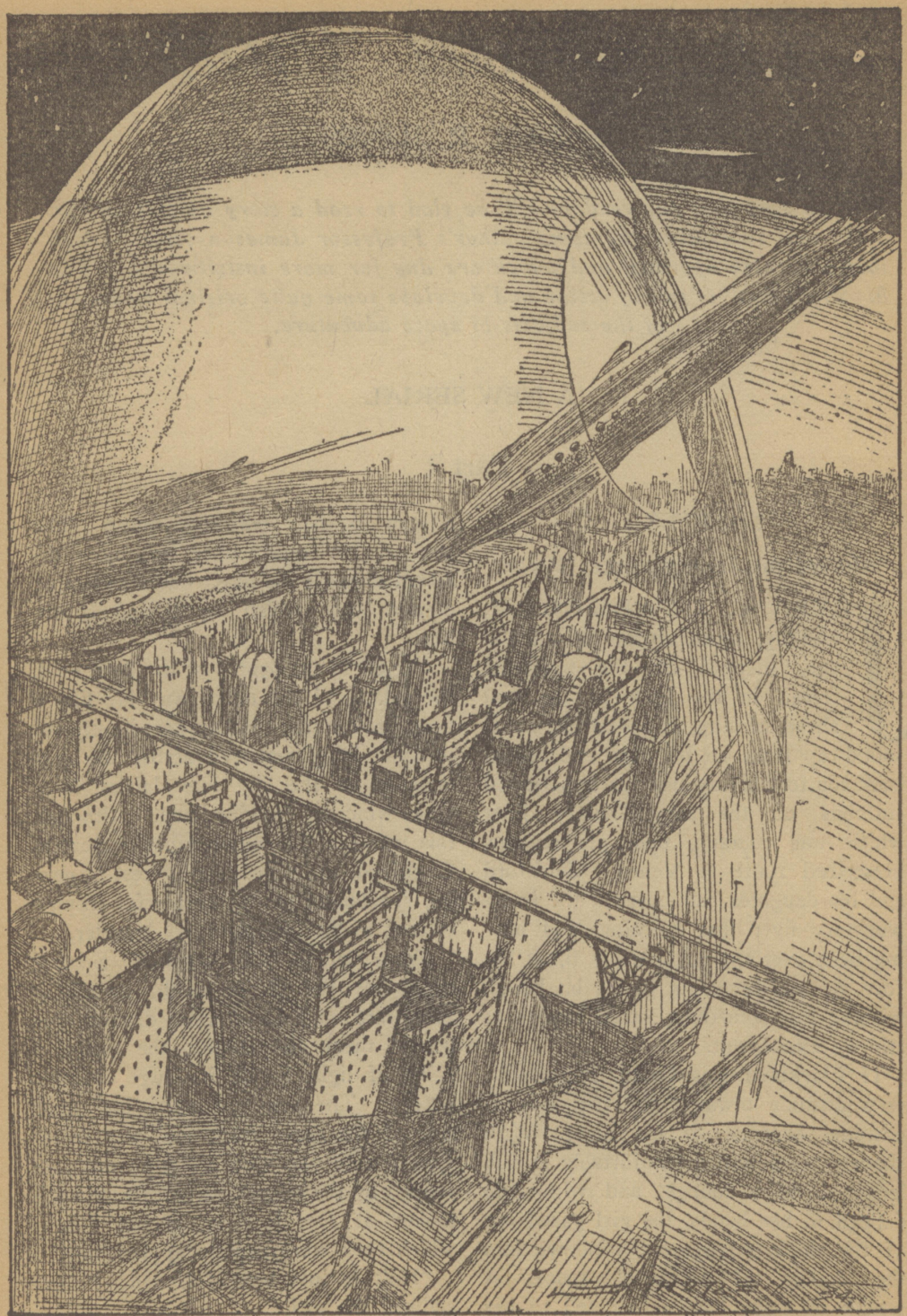
If Clarkford was bored, his daughter's attitude towards the trip was in extreme contrast to his own. With shapely form settled comfortably at full length upon a lounge, and with chin cupped in her hands, the girl gazed out of the thick, transparent windows into the depths of universal space. A wealth of wavy brown hair fell to her shoulders, while her blue, fathomless eyes were of that innocently penetrating nature which seeks out the very soul of a man in their searching quest. The oval of her pretty face was now directed towards the beauteous wonders of cosmic space which lay spread before her.

Far off in the depths of the dark void, the galaxy of the milky way lay like a fiery band across the heavens, its myriad of stars lying scattered across the vast expanse of the sky like daisies in a long, winding, twisting lane. Although this was not the initial trip for Suzette Clarkford, she never lost interest in gazing spellbound at the wonderful display offered to the interplanetary traveler.

From where she watched, Suzette could see the planet earth, dwindling away into millions of miles distance far behind them, its satellite, the moon, a point of light beside its huge contemporary. The sun was upon the other side of the space craft, and was therefore lost to the view of the occupants ranged by the opposite windows. Suzette looked at the dazzling orb of Venus which they were rapidly approaching.

"Isn't it just beautiful, daddy?" exclaimed the girl.

"Yes, it certainly is," agreed her father. "But after you have ridden these interplanetary flyers as long as I have,



In the center of the dome, a series of openings appeared to give the space flyer from the earth an entrance.

they will offer no special interest to you, Sue."

"Oh, no!" remonstrated the girl. "I'll always love it! It is so wonderful—vast—mysterious—and weird! What fun it must be to pilot one of these!"

"WE are nearly there," said her father. "I hope that I find Dempster all right. I've come across thirty million miles of space to see him. Just before I left, I received two radio reports. The one from Mars stated that he had left a day or so ago upon the interplanetary limited for Venus, while the information from Venus stated that the interplanetary ship was expected to arrive soon from Mars. It would seem, then, that Dempster is already there."

"Oh, your business, daddy!" deplored the girl as she came to sit by her father and embrace him. "Why don't you forget it sometimes—and not let it weigh you down so much!"

The wealthy manufacturer smiled at his daughter's attempt to compel him to abandon his cares for a while.

"I'll forget it all until we get back to earth after I've seen Dempster," said Clarkford. "This represents a big deal which includes projects on three planets. It is very important."

"Come up in the observatory," suggested the girl. "We shall be landing inside of half an hour, and I like to watch our descent from space, especially upon Venus. It is so wild, untamed and primitive—and beautiful. With its riot of teeming life it is so vastly different from the sad, desolate surface of Mars. Come, daddy."

The girl skipped along through the huge space flyer, leading her father by the hand until they reached an elevator which took them to the observatory in the top of the craft.

And while they prepared to view the descent of the space flyer upon the cloud covered expanse of Venus' surface, the interplanetary liner raced nearer the silver sphere at a tremendous speed which was only possible in a vacuum. It was in the year 2564 A. D. Man had conquered the realms of space, even as he had previously conquered the air, and gigantic space liners now make regular trips among the three planets, Mars, Venus, and the earth.

Following the first space flights to these planets, representing man's pioneer efforts at crossing the boundaries of space after a series of successive failures and disasters, it was found that on neither of these planets was there a race of intelligent beings. Both supported life—Mars' meager plant and animal life contrasting strangely with the luxuriant vegetation and teeming life amid the swamps and steaming jungles of the Venerian globe.

Mars, even though its atmosphere was of a rare, thin composition, was found habitable for certain individuals, and had been colonized from the earth. Enough remained of aged relics and hieroglyphics upon the Martian world to assure geologists that on a far gone day in the dim past, a highly intelligent race, superior to man in intellectual attainments, had flourished upon the little red planet, but had for some reason met a wholesale extinction, or else had dwindled away through the passing of years, leaving after them a limited number of various lower types of animal life and a sparce scattering of plant life. The environment of the Martian globe had been such that with the scientific resources of the earth it had been made habitable for mankind, being colonized along with Venus, to relieve the earth's serious population problem.

THE conditions upon Venus were found to be radically different, and at first it had been a continual fight

for existence with the fierce creatures and colossal monstrosities which inhabited the Venerian world.

The room in which Susette Clarkford and her father found themselves was the observatory, a superstructure upon the oblong space ship. The two were not alone; there were fully a dozen others within the lookout chamber, and all eyes were centered upon the huge globe below them encased in its feathery, shining cloud mass.

As the space-ship neared the gravitational attraction of the planet, its speed was reduced, and the flow of atomic energy was reversed somewhat to offset the mighty pull of the globe. It loomed closer and closer—until suddenly they were surrounded by a thick impenetrable fog of milky whiteness. For several moments they appeared to be suspended within this blanket of moisture particles, until finally they broke through. The space flyer from the earth had pierced the cloud-blanket of Venus, and was now cruising a mile or more above the surface. Stretching below them through the distance to the very rim of the horizon, as far as the eye could reach, a mass of yellow-hued vegetation grew to a great height.

The ship dropped lower as it cruised above the surface of Venus, and now those within the observatory of the interplanetary flyer could view the more minute details of the planet.

Gigantic forms lumbered ungainly through the yellow forests, raising their huge snouts to bellow defiance at the space ship.

"Oh, look, daddy!" exclaimed Sue suddenly. "Down there!" the girl pointed her finger at a small clearing in the forest of yellow, swaying branches.

"It is a battle of monsters!" exclaimed Clarkford.

Below them in the forest, two nightmarish engines of flesh and blood were preparing to tear one another asunder with the mighty weapons which nature had bestowed upon them! One of the creatures was formed like a great snake with a long body some five feet in diameter, having a series of some eight or ten sets of long legs which held it above the ground. The great, glittering rows of teeth which lined the terrible jaws of the animal were outstretched to a span of some twelve feet ready to close upon the anatomy of its equally fearsome adversary at the first opportunity! Its opponent was just as large, though of a more compact build, being of towering proportions mounted on three sets of legs. From all sides huge, curling tentacles waved nervously as the other beast approached. Four little eyes gleamed wickedly from the squat, diminutive head which, devoid of any neck, sprouted from the upper forepart of the creature's colossal bulk. The tail of the animal curled and switched as it stood, waiting defensively for the charge of the other snakelike creature. The later, its wide jaws distended, was rushing forward madly.

"What terrible things!" breathed the girl excitedly as she viewed the grotesque creations which roamed the forests of Venus.

AND now there broke forth upon the ears of the space ship passengers the most terrifying, blood-curdling roars, howls, mouthings and screams they had ever heard, the radio phones upon the outside of the craft conducting the sounds of conflict to the ears of those within.

The first animal leaped forward and seized a goodly portion of the second creature within its wide jaws which closed tightly in a vise-like grip! The bulky animal writhed and roared in the terrible grasp of the attacker. As its powerful tentacles closed upon the long,

twisting body of the other in a death-hold, a large section of the animal was torn loose. And now the witnesses to the primitive, mortal combat saw the effects of the tightening tentacles upon the body of the wide jawed animal. The edges of the tentacles were lined with razor-edged segment, and as the tentacles closed tightly, working back and forth in a rapid motion, the body of the attacking beast was cleaved into three or four sections which continued to wriggle and twist separately in their death throes! The head of the disgusting creature released its mouthful of living flesh and seized upon the huge animal in a new spot!

The second beast, with victory within his grasp, though bleeding to death, stiffened spasmodically at this second onslaught, while the great jaws crunched together for the last time and froze, the bodily remains of the animal still squirming, the long legs kicking!

"How terrible!" shuddered the girl as she shrank back from the grisly sight.

As if by prearranged signal, there broke forth from the surrounding forest below a pack of animals as large as horses, running swiftly forward on ten legs. They appeared to be a cross between an animal and insect, for a series of antennæ arose from their heads, while the covering on their backs was such as one sees on beetles. Their jaws were those of an animal, and from between them there issued dismal howls as the dozen or more of these denizens of the yellow forest broke forth into the clearing from the surrounding verdure. They had been impatiently awaiting the outcome of the conflict between the forest giants. They leaped, fought and howled, their weird cries wailing in concert as they viciously attacked and devoured the remains of the two great beasts who had fought and died within the short space of a few minutes.

"This is a repetition of what took place when our own world was young—during the Mesozoic age," said Clarkford to the girl. "Though of course there were different types of animals and trees than we see here."

AS the flyer reached a certain level over this flatland surface of the planet, it put on more speed so that the terrain now swung dizzily past them in one continuous blotch of yellow. Several times, huge shadowy forms flitted about them on wings, rising up to meet them, or descending from a higher altitude. The speed of the ship was so great that they were always left in the rear.

"Flying reptiles," explained the business man to his daughter, "or what are technically known as pterodactyls. They are fearless, of an extremely combattive nature, and are continually attacking the smaller space flyers on Venus."

"There is the city!" cried the girl pointing far off on the horizon above the forest where a high globe arose like a bubble. "We are nearly there!"

"Yes—it is Deliphon, the first stop of the space ship!" said Clarkford.

Rapidly the ship approached the Venerian city which was protected from the frequent rains and terrible storms, as well as from the huge swarms of insects and lumbering giants of the forest, by a transparent dome which covered the entire city from end to end. As the space liner soared above the enclosed metropolis, the tall buildings could be seen through their transparent covering, rising to meet the city ceiling.

In the center of the dome, a series of openings appeared to give the space flyer from the earth an entrance. The interplanetary liner lowered itself through into the city, beneath the high dome, cruising very slowly through the maze of air traffic to a broad central building

which towered above all others within the city.

The massive structures arose to over one hundred stories, the last five floors comprising open air landing bases for aircraft and space flyers. The interplanetary liner headed for the fourth level, or the one just under the roof. Under the expert management of its pilot, the giant of the skies came safely to rest upon the fourth level.

"Well, we have arrived," remarked Clarkford.

"It was such an enjoyable trip!" exclaimed Suzette.

"Come!" said her father as he hurried the girl to an elevator. This brought them from the fourth to the first of the five open air-levels where the city aircraft were located. Clarkford hired a small plane, and the two were taxied across the city to an office building, and soon he was in conference with members of the firm he had come to see.

AS he emerged from the offices to the ante-room in which his daughter awaited him, the latter noticed the worried look upon his face.

"What is the trouble, daddy?" queried the girl.

"Dempster—he isn't here."

"But didn't he come?"

"Yes, and then returned to Mars only a few hours after he had arrived."

"Didn't he know you were coming?"

"Evidently not. That is where I made my mistake. I should have sent a radio message to the interplanetary ship he was on, getting into direct communication with him, instead of talking with the station here at Venus and the one at Mars."

"What shall we do?" asked the girl, wide-eyed. "You have had the trip for nothing—but we can turn it into a pleasure trip."

"We must leave for Mars on the next interplanetary limited," stated the man with serious mien. "The next one leaves within six hours. With the present positions of Mars and Venus on their orbits, the trip will take approximately two and a half days."

"Why, there is nothing in that to be so discouraged about. It is a very good way in which to spend your vacation."

"The trouble is this—something I haven't told you about before," said the girl's father. "I have in my pockets bonds and papers worth over twenty million dollars, which I must personally turn over to Dempster or to one of the Martian officials of our business. I'll not be satisfied or free from concern, until those bonds are off my hands and I can dismiss the matter from my mind."

"Oh!" exclaimed the girl. "Then of course you must see this man as soon as possible."

As the two conversed, they failed to notice a sallow-faced individual leaning against the wall a short distance from them to their rear taking in their conversation. Having heard the main part of their talk, he moved away from them unobserved.

"We must eat, make a change of clothing, and be ready to take the next space ship limited to Mars," said Clarkford as the two retired to a dining hall.

CHAPTER II

Buccaneers of Space

WE shall now turn our attention to that cold, dead, desolated surface of the earth's satellite, the moon, which represented a forlorn vista of melancholy loneliness. In all directions off in the boundless realms of interstellar space the fiery points of star light scintillated and glittered from suns situated interminable eons of light years

from this comparative speck of cosmic dust, the moon.

Between the pitted rim of a deep crater and a towering peak of rough, lunar rock, a lonely traveler picked his way through the barren valley of silence to the summit of the peak, accomplishing the ascent in enormous jumps which he appeared to take with surprising ease of motion. The solitary scaler of this lunar peak was clad in a queer accoutrement of metal and an elastic substance to protect him from the frigidness of the low temperature as well as from the burning, destroying rays of the sun. From spiked shoes to chest, the moon-traveler's suit was composed in part of thick rubbery material which yielded to his every motion. His chest, back and shoulders were encased in a sheeting of heavy, yellow metal, his arms being inclosed in the elastic material which terminated at the finger tips in steel claws, four claws on each hand, opening and closing at the will of the wearer. The head of the moon-traveller was encased in a massive helmet, the front of which was of a transparent substance, through which the man peered as he made his way over the dismal surface of the dead satellite.

Having gained the lunar rise, the man turned and looked backward down the slope of rough, jagged rock formations he had just traversed. Raising his eyes, he looked miles away into the distance where outlined vividly in the airless void surrounding the moon, each detail of the lunar topography was as clearly portrayed to his view as if it were no farther than a distance of twenty feet from him. On all sides lay the towering hills, stretching away to meet the rough surfaced mountains which loomed still further skyward. Stars gleamed in riotous profusion against the background of intense blackness.

He continued on once more, taking a leap which carried him a distance of fully twenty feet across a deep gash to a small plateau. From this he essayed another jump to the semi-flat surface of another rise across a low depression of uneven surface. His calculations fell short of the described destination. The leap had left him a foot or two short of his prospective landing place, his feet striking the side of the rugged outcrop of rock and sliding downward toward the abyss which yawned beneath him. Frantically the claws on the arm-extremities of the suit opened and closed rapidly as the moon traveler attempted to gain a hold upon the rough side of the peak down which he slid toward the unknown depths of the black pit below him. A landslide of fine particles and larger pieces of moon rock accompanied him, but there was no rising of dust such as would have happened had there been an atmosphere.

Finally the spiked feet of the man caught upon an outcropping of rock which did not give way beneath him, and his swift descent was terminated. From here, he gave a leap which carried him to the summit some twenty feet over his head, and then, in long, fantastic leaps, he continued his journey across the irregular surface of the moon until he arrived upon the rim of a crater. The sides stretched away into the distance, the diameter of the crater hole being fully three miles across from rim to rim. Looking into its depth, the moon traveler surveyed the sloping sides of the pit which extended downward into the gloom.

HE walked along the edge of the crater for a short distance until he reached a certain point on the crater's lip where the interior of the gigantic, circular depression dropped vertically towards the bottom of the broad crater hole.

The ring of an iron ladder was set in the lip of the crater wall, and extending downward were a succession of more ladder rungs. Down these the moon traveler climbed, disappearing into the blackness, being suddenly lost to view from the sunlight as he continued his descent into the crater. Reaching a depth of some three hundred feet below the crater's rim, the man stepped off of the ladder upon a small platform set in the wall of the pit. Before him lay a tunnel's mouth and into this he walked, the absolute gloom of the pit being supplanted by an ethereal glow which appeared to emanate from the walls of the tunnel, exuding a soft, dim brilliance. The moon traveler traversed the tunnel for a considerable distance until he emerged into a cavern of proportions slightly larger than the tunnel he had come through, and now before him stood an elevator such as might be found in any of the modern twenty-sixth century buildings.

The elevator car, like all of those at this period, was propelled by an explosion and rejection of atomic energy, and as the man entered and turned a lever slightly the car shot rapidly downward, nor did it slacken its mad pace for the next mile's descent, until it stopped. The moon traveler left the car, walked through a short tunnel to where a portion of the rock slid aside to allow him entrance to a small chamber. The rock wall then slid noiselessly back into place after he had entered.

He pressed several large, metal knobs set in the wall, and a hissing of air sounded as the semi-vacuum of the air-lock chamber was filled with the respiratory atmosphere of nitrogen and oxygen. He now turned his attention to a long rack at one side of the room where there hung an array of suits and helmets similar to the one which he wore. The moon traveler removed his helmet first of all, and then unlocked the air rejuvenator from his back after which he emerged from the rest of his moon-surface suit, hanging it carefully alongside the others.

A buzz of voices became noticeable as the man strode along the tunnel towards an open doorway at the far end. The voices became louder and more garrulous as he neared the entrance. As he came in, a voice greeted him.

"Hello, Bender, we have some very good news for you—news which our remarkable Zind has just radioed to us from the Deliphon city at Venus!"

THE underground chamber was a luxuriously furnished room, which would have done credit to the wealthiest homes on any of the three planets, had it not been so garishly outfitted and overdone with a lack of taste for harmony. Certainly the furnishings of the place were of the finest and most expensive, but their arrangement and contrast were like the assortment of ruffians and ill natured crew which lounged comfortably within this hidden lunar cavern. Fully a dozen men either reclined at ease within the long room or else were engaged in some trivial occupation to while away the time. From this great central chamber, doorways led in all directions, and from the various sounds which came out of them it was evident that these dozen or so men did not constitute the entire group which occupied the subterranean chambers of the moon.

The squint-eyed little man who had addressed Bender now continued.

"It's more rich hauls for us, comrade, the richest we have ever laid hands upon yet!"

"Is that so, Terseg?" queried Bender.

"Yes, very much so—we are going to capture the interplanetary limited between Venus and Mars. It contains shipments of gold and valuable merchandise

—and that isn't all, so Zind tells us. A passenger upon it carries a fortune in bonds with him!"

"But that is too dangerous!" expostulated Bender, addressing the men as a group. "We haven't the fighting equipment to overcome a large ship such as that—and if we should succeed, we'd bring the wrath and destruction of the three worlds down about our heads! It is safer to stick to the smaller private interplanetary ships! We can make a good living out of plundering the smaller merchant craft which ply among the three planets."

"Well, that is what I think, too," agreed the Terseg. He had derived his name from the fact that his squint eyes and queer shaped, peaked nose gave him the expression of the terseg bird which was one of the commoner species of Martian ornithology.

"SILENCE!" thundered a squat-built, dark-visaged man with a bald head. "Is this mutiny? I'm the leader here—and whoever contests the fact gets the disintegrator gun or the ejector tube! You're not to do any thinking, Terseg—Hulan and I do that! I lead the crowd, and make our plans—Hulan carries out all of the scientific details! If I hear any more opposition from you, Bender, it's the disintegrator gun for you—or maybe Hulan will have a more unique idea, eh, Hulan?"

A cruel, thin-lipped smile was the only answer from the man across the table from Carconte, the pirate leader. It was a reply freighted with more significance than words could ever have carried. Though not as villainous appearing as his pirate chief, there was something about Hulan which made men shudder and fear him more than they did the verbose, terrifying Carconte. Perhaps it was because Hulan was half-machine and half-man.

Fully fifteen years before, Hulan, a scientific prodigy of the Martian university at Fomar, had been in an interplanetary wreck upon an expedition to the asteroid group adjacent to the mighty planet Jupiter. The meteor repelling rays of the space flyer had become impaired through some failure of the intricate mechanism to function perfectly. Tearing through the seas of space between worlds at a terrific speed, a huge meteor had smashed into the space flyer, reducing the interplanetary ship to a mass of junk, and killing its six occupants, including Hulan, outright.

The mass of wreckage and dead men became a satellite of Ceres for a period of three earthly years before the remains of the space ship with its grisly crew were recovered by a Venerian expedition to Jupiter and the asteroid group. The remains were towed to a Martian city. Here is was found that five of the dead space ship crew were so torn and mangled as to be unrecognizable.

All six of the bodies were as perfect, preserved by the cold, germless vacuum of space, as they had been at the moment sudden death had stricken them from out of space. Hulan's body was the least marred of the six. Some of them had been decapitated and torn to shreds by the awful crash and rending of the meteoric impact, when the space wanderer had torn out of the cosmic void at the rate of fifteen miles per second. Hulan's arms and legs had been either torn to pieces or else were so mangled that the surgeons at the Martian hospital had found it necessary to amputate them. His skull had also been fractured in several places and a piece of metal had punctured his heart.

Then followed the greatest surgical-mechanical feat any of the three worlds had ever known! Hulan's heart was taken out, a rubber one substituted; the

upper section of his fractured cranium removed, and his brain replaced in a new aluminum skull; and he was brought back to life. For a year he had lain in an unconscious state while his wounded arm and leg stumps healed.

When they were sufficiently cured, Hulan was brought out of his coma of suspended animation and was equipped with mechanical arms and legs. The man who had been dead for three long years had been miraculously recalled to life. He now had a rubber heart, an aluminum brain pan, metal radiophone ears and mechanical arms and legs. Nez Hulan was truly a human robot.

THE results of the removal and replacement of his brain had stimulated the mentality of the man to such a degree that he was endowed with a greater intellect than had been the case before the accident. Sad to say, however, the super-intellect of his mind had been perverted to an evil, murderous morale, and the complicated, scientific deaths of several notables upon the Martian planet were finally traced to him. He had been forced to flee from Mars and keep under cover from interplanetary police and detectives. Finally he had joined the forces of the moon pirates, seeking protection and companionship in return for his devilsh ingenuity.

And so the cruel smile of Hulan was more to be feared than the ominous, blood-curling threats of Carconte.

"Why—I—I merely suggested that it might be dangerous to the good of all," faltered Bender discreetly.

"He meant no harm, Carconte," said Hulan placatingly, his dull, monotonous voice breaking in upon the conversataion for the first time. "He is just naturally cautious. If we find traitors or deserters in our ranks, well——"

Hulan raised his arm forward at full length, the light glistening on the bright metal limb, the strong steel fingers closing together in a significant clutch, as a wicked smile spread upon the face of the machine man. His features reflected the intellectual superiority he exercised above this motley crowd of scoundrels. Hulan's words were few, and, at what times he spoke, the rare occasion of his speeches lent particular emphasis to his words. He never failed to capture the attention of his listeners, for the man never dropped an idle word—they were always laden with deep import.

And so it was that every moon pirate in the room gazed silently at Hulan's gesturing, mechanical arm, and at the bald, aluminum pate with its pair of metal ears, the grotesque appearance of the man holding them spellbound for a moment.

"Terseg was right about those bonds," said Carconte. Zind overheard some bankers in Deliphon say that this man was taking the Interplanetary Limited for Mars with twenty million dollars worth of bonds upon his person. Incidentally, Hulan and I have been planning for a long time to seize one of the 'interplanetary limiteds' between Mars and Venus. They carry valuable consignments of gold and merchandise—and the knowledge that this man with the bonds is to be aboard this particular flyer, is an added inducement for us to capture it."

"When do we start?" asked Bender, curiously.

"To-morrow at noon," replied Carconte. "It is rich awards for all of us—another derelict space ship destroyed and sent upon an endless journey out of the solar system—then back here to the rendezvous to plan a new venture! We'll have treasure, gold, and merchandise!"

"And maybe women!" added a grizzled old veteran of many a combat,

his hideously scarred visage set in gloating anticipation.

"No women!" snapped Hulan's metallic voice, cryptically "They bring disaster and death to such as we—they are a trouble and ruination to the best laid plans!"

"YOU and your damned rubber heart!" retaliated Scar Face heatedly. "You haven't the feelings of a human being! Just because you don't want a thing, the rest of us must forego it! We are not all hunks of iron and rubber, are we, friends?"

"Stop this infernal bickering!" roared Carconte. "I'll have the say as to whether we'll take women or not! If there are any on board the 'Limited,' why I'm the one to decide as to whether we shoot them out the ejector tube with the rest, or save them for the sport of the men—or for Hulan's laboratory! Now is no time to discuss the question, and when it is settled, no contraption of flesh and junk is going to decide—or any crowd of lily-livered poltroons either; I'm the supreme authority here! Get that! And now we'll lay our plans —sound the signal bell, and bring every man into the chamber!"

One of the men at the table leaned forward and depressed a button. A moment more and pirates came pouring into the central chamber from the adjoining rooms and corridors where they had been engaged in various occupations. They continued to fill up the broad room beneath the surface of the moon until over fifty of them were present. In here, there was none of the high jumping or awkward movements which had characterized the progress of Bender as he had wandered across the moon's surface just before his descent to the hang-out of the moon pirates. The floors of these subterranean chambers of the earth's satellite were composed of the same substance as that which made up the flooring of the space ships, possessing a gravity attraction equal to that of the earth.

"All right, men!" shouted Carconte, standing upon the table where he could be seen by all his murderous crew, the desperate characters and outcasts of three worlds. "You probably know that to-morrow we embark on a new, hazardous venture, an escapade which is fraught with danger, something we have previously considered beyond our capabilities, but to-morrow we are going to capture the 'Interplanetary Limited' between Venus and Mars!"

A roar of approval greeted these words, and then Carconte continued his outline of their plans.

"Before this, when considering the capture of these larger space ships we have had to pass them up and confine our attentions to the smaller craft, so that we would not bring to the attention of Mars, Venus and the earth the fact that an organization such as ours exists, but now Hulan feels that we can overcome these interplanetary giants, and the peoples of the three worlds will never know what became of the Interplanetary Express whose fate shall always remain a mystery. After the conquest of the 'Limited,' and the pilfering and destruction of the craft with its passengers, we shall return here with the treasure, and then we can hide-up until the trouble blows over. It will be popular opinion that the ship was wrecked by a meteor and sent shooting off into space beyond the solar system."

The men were awed to silence by the magnitude of the idea their pirate chief had described to them. That the plan appealed to their venturesome spirits was indisputable, and so finally when the full import of the idea had sunk into their brains, they all joined in a rousing cheer for their chief, and for the

ingenuity of the scientific arch-fiend, Hulan, the human robot, whose perverted, super-intellect had made possible the many victories they had amassed to their credit.

"Overhaul the 'Jolly Roger,' our interplanetary ship, and fit it up for our departure to-morrow!" shouted Carconte in his parting instructions before he jumped off the table and sent the men scurrying to their various duties. "Hulan has some new mechanical contrivances to be installed within the ship!"

CHAPTER III

The Jolly Roger

UPON the interplanetary limited to Mars, Clarkford and his daughter rose from a refreshing breakfast following a pleasant night's rest aboard the space ship, which had put many miles between its present position and the planet Venus. When referring to a night's rest in the depth of space where there is no night or day, but rather a a paradoxical combination of both—the daylight sun shining from out of the star-studded darkness—the reference to a night's rest is conceived through the fact that Clarkford and his daughter were continuing their daily routine upon the basis of the earth-time until they reached Mars.

And now they emerged into the luxurious parlor chamber of the 'Space Limited' which sped upon its way at a fantastic speed, covering several millions of miles every hour. Taking seats where they could look from the windows of the huge space flyer, the two talked over the situation.

We certainly had trouble getting aboard this 'Limited!'" said the man. "They didn't seem to want to carry passengers."

"I wonder why?" queried Suzette. "There were plenty of passengers on the flyer we took to Venus, and here I don't believe that there are over three passengers besides us. Of course there are the crew which numbers some eight individuals."

"Well, Sue," replied Clarkford, "you see this wasn't exactly a 'Passenger Limited,' but an 'Express Limited,' and it was strict orders for the astronauts to take on but few passengers, and these only under the strick recommendations of the Venerian government, and we surely had a hard time getting those in time to board the 'Express Limited.' If we hadn't received the papers just as we did it would have meant another delay of two days."

"But why are they so reticent about allowing us to ride?" asked the girl perplexed at the mysterious attitude the commander of the space ship had taken in regards to their passage.

"Because they have a shipment of five hundred million dollars in gold, platinum and diamonds aboard!" answered Clarkford.

THE girl gasped for breath, her eyes going wide at the mention of the vast sum.

"A half-billion!" she echoed faintly.

"Yes," replied her father, "and with so many crooks running loose now, they can be none too careful as to whom they take aboard, even though the valuables are under massive locks in strong vaults."

"And so their passenger list is limited to five—three people besides us," observed the girl.

"Yes. There is Mr. Balfour, the slim, dark-faced individual who is traveling to Mars to study the rain machines. Then there is Bert Sorelle, who is joining a Martian expedition to Saturn to study the planet's rings, and then last of all we have Professor E. J. Crayton, who is a professor of botany

at the Formar University, and who is returning to Mars after having passed several weeks upon Venus studying the Venerian flora."

"From what little I have seen of them, I believe I like Mr. Sorelle the best. He is so interesting and entertaining," remarked the girl.

"Yes," agreed Clarkford, "because he is an adventurer who has been at the most prominent places of action on three worlds, not to mention the numerous expeditions into space he has accompanied.

"Here he comes, now!" exclaimed the girl.

A pleasant faced individual of middle age, in whose eye there still lurked the spirit of carefree, adventurous youth, walked towards them from the entrance to the dining saloon.

"Good evening!" he greeted them cheerily.

"Good evening?" queried the girl. "You mean 'Good morning!' My father and I just came from the breakfast table."

"And I from my supper," laughed Sorelle. "I see where I must change my sleeping hours, if I'm to see much of you folks during this trip. I assume you are on earth time; well, I'm on Martian time, the eastern hemisphere time, which at the present brings your night and my day in conjunction. I must change over, or I'm going to be deuced lonesome. There are only four passengers besides myself, and they all seem to be eating and sleeping on a different time schedule than mine."

Clarkford laughed heartily at the ludicrous situation.

"What do you say we all take a trip up into the observatory, and watch the earth as we spin past it?" he suggested.

"Oh, fine!" said Suzette, clapping her hands together.

"Suits me," agreed Bret Sorelle.

The three started for the superstructural chamber of the observatory whose transparent walls would allow them a glimpse of the cosmic skies.

"Pardon me," spoke a handsome, dark-faced man whose thin willowy figure bent in a polite, apologetic gesture, "but you wouldn't mind if I accompanied you?"

"Certainly not, Mr. Balfour," replied Clarkford to the individual who had just entered the parlor. "We shall be glad to have you with us."

"Thank you, sir," and the scientist, who was traveling to Mars in connection with an interest in the rain machines of that cloudless planet, brought the number of the group to four.

THEY entered the observatory to find Professor Crayton talking with a member of the crew, whose uniform proclaimed him to be one of the two pilots who alternated with each other in the management of the space flyer. Professor Crayton was speaking.

"Yes, Trenton, it is true that the flowering shrubs of Venus owe their excessive size to the fact that the atmosphere is so humid."

At the mention of the man's name as the four entered the room, Clarkford sprang forward.

"Is your name Jan Trenton? Jan Trenton—the astronaut who had the encounter with the death's head meteor?"

"Yes sir, that's who I am," admitted the young man, "but I can assure you that we'll have no encounter with mete-ors this trip, for our repellor rays steer us off their course."

"Oh, I have no fear on that score," laughed Clarkford, gripping the hand of the young astronaut in a hearty shake. "I heard of your exploit right after it had happened six months ago. A radio news dispatch from Mars gave us a first hand description of it following your return to that planet when your space

flyer tore loose from the meteor in the upper reaches of the Martian atmosphere. You folks all remember that, don't you?"

"I remember, daddy," said the girl gazing in open admiration at the young pilot of the interplanetary limited. "His picture was broadcast over the television units."

"And thrilled the world with an account of your unique adventure, Mr. Trenton," added Bret Sorelle, the adventurer. "I've been all over the three worlds and three moons, and in my time I have enjoyed quite a number of harrowing, death-defying adventures and thrills, but in all my career I profess I haven't had one which matches that of the death's head meteor."

"I was a witness to part of the tragedy, or rather near tragedy," announced Professor Crayton. "I was within thirty miles of where the meteor struck. I saw the flaming body tear down out of the atmosphere, and heard the terrible concussion as it landed."

"They dug the meteor out of the ground," observed Balfour, "and now what is left of it is on exhibition at the museum in Mendex. I saw it there the last time I was in the Martian city."

"Yes," replied Professor Crayton, "but what is on view at Mendex isn't one-twentieth part of the original meteor. It is merely the burnt out fragment of one of the pieces after the explosion."

"What ever happened," asked the girl, "that made your space ship break away from the meteor just in time? Why didn't it break away sooner?"

"Well, you see it was like this," explained the astronaut. "If you remember, I left the drill and release of atomic energy running at full speed. The terrific release of atomic energy coming in contact with the solidity of the atmosphere acted the same as a kick of dynamite, producing an immense inertia which blew my space car right off from the side of the meteor, breaking off the chunk of the meteor which had been loosened by the drilling. That small meteorite fragment which broke off and clung to my space ship, when it was cast back into space, is now mounted on a pedestal in the astronaut's station at the Meteorological Bureau in Denver, Colorado."

"A cool head is what saved you, my lad," said Clarkford.

"It was the closest to death I ever came," said Trenton.

"The closest anyone could expect to come without dying," observed Sorelle.

"DID you ever hear of the case of Nez Hulan?" queried Crayton.

"You men the man who lay dead in space for three years, and was brought back to life again after having been given a new heart made of rubber and his fractured skull replaced by an aluminum brain case?" queried Clarkford."

"Yes," replied Sorelle. "Who hasn't heard of it—the most famous surgical operation in history. His arms and legs were found so torn and mangled that their amputation was necessary. It seems that he was supplied with mechanical legs and arms as well as with metal radiophone ears built into his aluminum skull."

"Before the catastrophe among the asteroids, he was my pupil at Fomar," stated the professor.

"And since then he has been convicted of murder—escaped the authorities of three planets, and is either dead or else has gone into hiding," said Clarkford. "No one has heard of him for several years."

During the latter part of the conversation, Balfour remained strangely silent, apparently content to listen to the comments of the others, concerning the mechanical-limbed man.

Trenton and Suzette Clarkford were no longer interested in the general trend of conversation, but were training one of the long, protruding telescopes of the observatory upon the distant planet they were passing by, largest of the three consecutive worlds, the earth, which at that particular time was at distance of fifteen million miles from the route of the 'Interplanetary Limited.' the closest they would come to the rotating sphere.

"There is the moon!" exclaimed the girl. "See! It is just peering over the rim of the earth, on the other side of the planet!"

"I never cared much for that place," remarked the jovial Sorelle who had joined the astronaut and daughter of the wealthy Mr. Clarksford. "There's something about it that always gives me the creeps—some intangible, depressing feeling which I cannot accurately describe. I never felt that way on either of the two moons of Mars."

"I have never been upon the moon," said the girl. "My father has promised to take me there some day."

"I expect to see more moons than I'll be able to count, pretty soon," said Sorelle.

"How is that?" asked Trenton curiously.

"I'm on that Martian expeedition to Saturn to study the small moonlets which compromise its rings," replied Sorelle.

"That will be interesting," said Trenton. "I have never been any farther than Jupiter. I was on a trip once through the asteroids."

A member of the crew now came in and spoke a few words to Jan Trenton who in turn addressed the girl.

"I must leave now to take over the control of the ship. Brentley's spell is ended for the time being. I hope to see you again before the trip is over."

Bidding the little group good-by, the astronaut left to assume control of the interplanetary limited, while the five sole passengers of the space liner continued their viewing of the earth, moon, planets and stars, the latter twinkling brilliantly in scattered profusion.

IN the pilot's control room of the interplanetary express, Jan Trenton relieved Brentley, taking over the piloting of the huge space ship through the infinite depths of the cosmic vacuum towards the red planet of Mars, the outermost of the three consecutive planets which bore life and civilization. The astronaut set the nose of the craft ahead of the red disc of light, which marked the fourth satellite of the sun's incandescent mass, and then settled back to ruminate upon the trip, and upon his comparatively new position as pilot of the 'Interplanetary Limited.'

Following his encounter with the death's head meteor, he had won promotion from the ranks of the Meteorological Bureau's staff of astronauts to the coveted position of pilot of the 'Interplanetary Limited' between Venus and Mars. This represented his fourth month in the service, and his capability and punctuality had already won him commendation.

He liked the position; it brought him into contact with a number of interesting and delightful people, and represented a direct contrast to the lonesome work in which he had been engaged while in the employ of the Meteorological Bureau. His thoughts reverted to the sweet face of the girl with the sparkling eyes who had stood with him a few moments before the telescope. How lovely she was, thought Jan, looking upon the far off planet of Mars whose red eye shone like a ruby amidst the scintillating sapphires and diamonds of star points. Never had he seen such bewitching eyes—nor such lustrous,

wavy, brown hair, and she radiated such a charming personality.

He sighed, for among his thoughts there arose the realization of the gulf which lay between their stations in life. He let his eyes drop from the red planet to the control board.

AS his eyes fell upon the control board, he gasped in sudden astonishment! He had unconsciously diminished the speed of the space flyer to half of its cruising speed while engrossed in his reverie! Quickly, his hand shot forth to increase the release of atomic energy back to normal once more. It was already shoved back to its limit—but the dials only registered half speed! What was wrong? Hastily, he radioed the machine room—everything down there apparently functioned perfectly. Again he referred to his dial, and with a qualm of dismay and perplexity he saw that it registered less than half, and was rapidly dropping. What was happening? Surely there was no celestial object close enough to affect the speed of the space liner in such a strange manner.

A dial which recorded the presence of large meteors now caught the attention of the pilot as he saw the needle slowly swing around from its neutral position in the transparent sphere where it was suspended, and point directly to their rear, a bit downward. There could be no meteors of great size in the vicinity, which would affect the speed of the space ship to such an extent. One of the larger asteroids might have had such an effect as to curtail the speed of the space liner until it should have passed the vicinity of the little world's attraction, but the nearest asteroid was Eros, which careened like some colossal mountain through space upon its orbit beyond Mars. Again he looked at the dial—it had dropped still further, and as he watched he saw the needle move perceptibly to a lower rate of speed! The astronaut was aghast, and tested the mechanism of the dial. It was working perfectly.

Meanwhile, the passengers and crew of the 'Interplanetary Limited' were unaware of the abating speed of the space liner. Movement in space is imperceptible, because in the immense vacuum there is nothing by which to make comparisons, and a space traveler may be progressing at the rate of several million miles an hour and be no more conscious of the fact than if he were moving at a very low rate of speed.

It was not until the space ship had actually come to a stop that any of the passengers or crew became aware that something beyond the regular routine of interplanetary travel was taking place.

The five passengers had all left the observatory and were now assembled once more in the parlor.

"I feel that something is wrong!" remarked Suzette Clarkford, the furrows of a deep frown mantling her pretty brow. "Things don't seem just right!"

"Your imagination, my dear," admonished her father.

Sorelle, with Balfour, was engaged in gazing from the windows of the space craft. At the girl's words he turned from his position on the lounge and made the following remark:

"I feel that way, too. It's rather a premonition of evil, which I've experienced before."

"Really, I see no cause for alarm," spoke Balfour, a smile spreading upon his olive-tinted countenance. "A case of imagination, as Mr. Clarkford has suggested."

Professor Crayton was silent, being absorbed in a book, and completely oblivious of the conversation of his fellow passengers.

Presently, Brentley, the co-pilot work-

ing in alternation with Jan Trenton, came in with a troubled scowl across his face.

"DO you people know that this space ship is at a comparative standstill, and that some mysterious force is holding us back?" asked Brentley. "The atomic discharges are still taking place, and by all present known laws of interstellar locomotion we should be speeding across space at several million miles per hour. Trenton is working at the controls, trying to get us out of this jam, but he says there isn't anything wrong with the ship; that there is an ulterior power which is holding us within its attraction. We thought it to be only fair for you people to know."

"I knew something was wrong!" exclaimed the girl, frightened by the mysterious force which had acted upon her subconsciousness, even before Brentley had made his startling announcement.

"What can it be?" quoth Clarkford in surprise.

Professor Crayton had dropped his book, on hearing the words of Brentley, and now he viewed the situation with alarm and consternation.

"Most unusual!" he remarked.

Sorelle said nothing, but it was apparent that he was thinking rapidly, and now he turned his attentions to the windows of the space liner.

"Fear not, people," spoke the smooth voice of Balfour. "Our remarkable friend Mr. Trenton, will no doubt solve the problem, and we shall be safely upon our way once more."

Of the five passengers, Mr. Balfour appeared to be the least perturbed of the group, and attempted to quell the fears and anxieties of the rest.

Suddenly a shout arose from Bret Sorelle who peered from the window out into the depths of space.

"Come here—everybody!" he yelled. "Out there is the thing, whatever it is, that is holding us back!"

There followed a grand rush to the window, and five sets of eyes were directed upon a huge, shadowy monster which lurked in their rear, and which was slowly stealing alongside of them.

"What is it?" whispered Professor Crayton hoarsely.

"Another space ship!" replied Sorelle.

"What is it doing here?" queried Clarkford.

"We'll probably soon find out," said Balfour suggestively.

The mysterious prowler of the dark realms of space swung alongside the interplanetary limited until a bare hundred feet separated the two. It was only half as large as the space liner.

From its sides there bristled several long spikes whose tips shone with a queer light, and from the prow of the craft a long tube projected.

"Look at that horrid emblem upon the front of the ship!" spoke the girl whose heart was pounding rapidly under the stress of excitement.

All eyes were now directed upon a white blotch of color against the sides of the black space wanderer where the sunlight reflected.

"A skull and bones!" exclaimed Professor Crayton.

"What does it mean?" asked Clarkford.

"Death!" said Bret Sorelle. "It is the skull and cross bones of free booters, the Jolly Roger! It can mean only one thing—pirates!"

CHAPTER IV

Captivity

UP out of the moon crater, the pirate ship, under the skilled control of Hulan, with Carconte, at his side, soared above the dead, lonely surface of the earth's satellite into the

immensities of solar space, leaving the fixed globe of the lunar satellite far behind. Hulan directed the "Jolly Roger" away from the satellite and its parent body which lay some quarter of a million miles off into space. Within the space-ship were some twenty-five of the moon-pirates who had been picked for the trip, the other half of the villainous brotherhood being left in the subterranean stronghold of the lawless organization which had preyed upon the space craft that cruised the seas of space between worlds.

Into the pilot's room of the pirate space craft, one of the buccaneers came.

"Is everything aboard ready, Delon?" asked Carconte, turning to the man who had just entered. "Are we prepared?"

"The gravitational spikes are in fine working order, our atom guns have been tested, and the atomic energy deflectors have been overhauled," replied the man.

"What of the radio attachments to the deflector," rasped Hulan, "have they been adjusted as I ordered?"

"To the finest point," replied Delon.

"All right," said Carconte. "Go and tell the men we shall overtake the limited within the next three hours, and be ready to receive and carry out my orders."

Delon hurried from the presence of his two superiors, and now Hulan and Carconte bent their heads together over a black square which showed them a view of the sky. Under the control of Hulan, the plate grew misty, and the scintillating stars, which shone from out the square of blackness depicted by the machine, grew dim. Then, under the adjustment of the human robot, the plate grew clear once more to reveal a certain section of the skies through which a space ship raced, the 'Interplanetary Limited' bound for Mars.

The little dot upon the screen grew in proportion as the pirate craft rapidly overtook the 'Interplanetary Limited.' His hand at the radio controls, Hulan with a wicked, malicious grin upon his pale countenance, reached across the intervening distance of space to neutralize the limited's propulsion charges of atomic energy, and slow it down. Speedily, they approached close to the great liner of space.

"They have stopped completely now," said Hulan. We shall have to maneuver alongside them."

"Get into communication with the ship," ordered Carconte, and tell them that if they don't give in at once, we'll fire a hole right through them, and let their air leak out into space; then we shall board them and take what we want."

"Why not do that anyhow?" queried Hulan. "Would it not be the most efficient manner in which to dispose of them, and save time and trouble?"

"No," replied Carconte flatly. "Perhaps we may find additions to our ranks among the crew—who knows—and we can use a few more men. Then, too, you remarked the other day that you were in need of human material for experiment in your laboratory. Here is your chance—and, Hulan, you forget that Zind is aboard the limited."

"What you say concerning my experiments is true," replied Hulan, "but in the case of needing more men, I believe we have plenty to keep in hand now. As for Zind, he has a space suit with him in case of just such an emergency."

"Anyhow," stated Carconte, thrusting aside all argument, "we shall take them alive—unless they are too stubborn to surrender voluntarily."

"Put the ray gun across their lower stabilizer fin," ordered the pirate chief. "Let them know we mean business and want to come to terms immediately."

Off the side of the pirate space flyer

from the moon, the ray of light shot forth from one of the long, slender cylinders which studded the sides of the craft. A long, ragged rent appeared in the stabilizer fin which kept the space liner on an even keel, while flying through the atmosphere of the planets. The ray had penetrated the huge sheet of metal to display its powers to the crew and passengers of the 'Interplanetary Limited.' Carconte wished to frighten them into immediate surrender with a demonstration of the ray which Hulan had invented and perfected.

Hulan now spoke to them in his crisp, monotonous voice which commanded them in imperious tones to stand by without resistance on pain of immediate death to all.

"Passengers and crew of the 'Interplanetary Limited,' we are the moon pirates, and we want the treasure you have aboard your ship. One of your passengers also carries valuable bonds which we desire. We are making no terms with you except that if you do not remain passive we shall use the terrible ray-gun upon the sides of your ship just as we did upon the stabilizer fin, the results of which you have witnessed. You have a chance for life, if you give in to us quietly, but if we meet with resistance it is certain death to you all! We shall give you ten minutes according to earth time to come to a decision and await our orders!"

Instantly a pandemonium of chaos reigned within the 'Interplanetary Limited,' and everyone attempted to speak at once, offering exciting suggestions.

"Put on all speed, and get out of the reach of their ray!"

"It is death for us all!"

"They'll burn a hole through our ship! Surrender at once!"

"It is worse than death to surrender!"

"Fight them!"

"They want the gold and bonds—give them to the pirates and we shall be saved!"

"I shall not give them these bonds!" refused Clarkford.

"Stop this idle bickering!" shouted Jan Trenton, leaping to a table top where he could command the attention of all. "We have only ten minutes to reach a decision before that deadly ray burns a hole through the side of our space flyer! You know what that means—our air will rush out into the vacuum, and we shall suffocate and freeze! We cannot get away from them, for our ship is held within a magnetic grip! We must listen to these robbers of space, who call themselves the moon pirates, and accede to their present demands! Remember, my friends, while there is life there is hope!"

The ringing words of the head pilot of the 'Limited' brought a semblance of order to the passengers and crew who were faced with an unprecedented occurrence since the innovation of space flying. The activities of the moon pirates had been so sly and efficient that to date none of the three worlds dreamed that such an organization existed, and the few small space flyers which had come up missing had been laid to meteors or faulty mechanism.

"RADIO the earth for help!" advised Brentley.

"With our equipment all dead from the influence of those devils?" retorted Trenton.

Brentley lapsed into silence.

"It would be best to surrender at once," advised Balfour a bit nervously.

"Doesn't look as if there is anything else to do, as far as I can see," remarked Sorelle. "This is a new one on me—moon pirates!"

"But what will they do with us?" protested Crayton.

"And my daughter!" added Clarkford.

At the business man's words, the face of Jan Trenton paled slightly, while Sorelle clenched his fists and bit his lower lip.

"Four minutes more," announced Brentley.

"They want the gold, platinum and bonds," remarked Balfour. "Probably after we give them those articles we shall be allowed to go upon our way unmolested."

"Ask them if upon receipt of the treasure they will allow us our freedom!" snapped Sorelle.

Jan Trenton did as he was bid, and then turned around to the group once more with the cryptic reply of the moon pirates.

"They say that unless we follow their directions within three minutees, their ray will penetrate our hull!"

"We shall have to depend upon their mercy," stated Sorelle.

"There is evidently no other way out of it," agreed the astronaut.

"What are their instructions?" asked Balfour.

"To allow them to come up alongside of us without attempting to ram or elude them in any manner," replied Jan Trenton. To do so would seal our fate. They expect no treachery."

"Well, tell them—quick, then," quavered the Martian botanist, Professor Crayton, as he consulted the time.

The astronaut communicated the consent of those aboard the "Space Limited" to comply with the pirates' demands, and they awaited the next maneuvers of the moon-craft, with doubt in their hearts, gambling with the outcome of the affair.

Had they seen the cruel, thin lipped smile of the aluminum-headed Hulan, or the broad wicked grin of Carconte, or heard the triumphant yells from the villainous crew, their hopes would have died within them. Could they have seen beyond the metal skull of Hulan into the active brain of the machine man, who had been brought back to life without a soul, they would have frozen with stark horror, welcoming the merciful oblivion of the yellow ray from the pirate craft!

The "Jolly Roger" swung slowly toward them until with a dull thud and a shiver of the limited's larger proportion's the two space flyers came into close contact.

"Keep away from the point of contact if you value your lives!" came the warning from the moon-pirates.

The occupants of the interplanetary ship kept at a discreet distance from the point where the hulls of the two ships had touched. It was well that they did, for a low hum sounded in their ears, a slight vibration manifesting itself throughout the space ship, tickling the soles of their feet where they rested on the floor. A dull glow spread its weird effulgence upon the side of the huge liner in a rectangle large enough for a person to stand upright against. Gradually the irridescent tints of blue, orange and red predominated over the natural color of the space ship's interior, and the rectangle of changing colors died away with the cessation of the humming vibration. There before their astonished eyes, hermetically connected with a square protuberance of the pirate craft, was a rectangular hole in the side of the space ship. A panel slid aside at the farther end of the protuberance, and two men walked through the connecting corridor into the interplanetary limited.

ONE of the men caused the passengers and crew of the space ship to gasp in sudden awe and astonishment at his weird, unearthly appearance. A shining aluminum cranium, beginning just above the eyes and cov-

ering the upper part of his head to a position just below his metal ears surmounted a pale countenance marked with a cruel smile of intellectual superiority. It was a smile of contempt, amusement and satisfaction. His mechanical limbs and steel fingers completed the amazing details of his body. The other man was a bald, short, thick ruffian whose wicked eyes gleamed as they rapidly took in the group before him. Behind the two there pushed a motley horde of ill assorted, villainous looking, unkempt ruffians who brandished atom-pistols and other weapons, forcing their way along behind the two foremost men.

"Nez Hulan!" ejaculated Professor Crayton at sight of the human robot who had lain dead in space for three long years.

"My Professor Crayton," rasped the unpleasant voice of the mechanical-limbed man with a sneering smirk of recognition. "This is indeed a pleasure which I would not have foregone for anything."

"Zind! Come here, you precious rascal, and tell me which of these men carries the bonds!" remarked the verbose Carconte.

The assembled group of passengers and crew gasped in surprise as the dark-faced Balfour stepped forward from their ranks and stood beside the pirate chieftain.

"That man," he said, pointing to Clarkford. "But the twenty million in bonds with their added encumbrance of cashing them before trouble starts is but a drop in the bucket to the wealth this ship carries! It is beyond your wildest dream, Carconte! Imagine it if you can—five-hundred-million dollars worth of gold, platinum and precious stones!"

The eyes of Carconte nearly popped from his head at the announcement of Zind, previously known to the passengers of the 'Interplanetary Limited' as Mr. Balfour, traveling to Mars as a scientific representative of a Venerian concern. A wild yell of approval broke forth from the uncouth ranks of the pirates who had poured into the craft behind their leaders. Even the self-confident, sedate expression of Hulan was upset by the startling news that a half billion lay within their reach.

"We are the sons of fortune!" shouted Carconte with vehemence.

"And what of these?" asked Hulan pointing a steel finger towards the group of crew and passengers with supercilious attitude. "Before we remove the treasure to our own ship, we must dispose of the passengers."

"RUN them into our ship and lock them up!" ordered Carconte. "We'll deal with them later, after the treasure is safely within the 'Jolly Roger' and this 'Space Limited' put where it won't be found! Come, you laggards, put these people where they belong, and slit their throats if they give you any trouble!"

Carconte motioned the men forward, and the pirates of the moon seized upon the luckless passengers none too gently and escorted them along the passage into the "Jolly Roger," prodding them with atom guns or whatever object they carried. As Suzette Clarkford walked past the pirate leader, Carconte reached forward and grasped the girl by the shoulder. She faced him, her startled eyes looking straight into those of the brigand who avidly drank in the beauty of her face.

"I'll take care of you later, my pretty one," he promised. "Never fear—you shall not meet the same fate as the others!"

The girl shuddered. Hulan frowned. Clarkford twisted about in the grasp of two burly ruffians in a vain effort to

come back to the side of his daughter. Jan Trenton, who was to follow the girl through the opening in the space ship halted momentarily, and the two pirates who were escorting him, being amused by the actions of their leader, did not urge his lagging footsteps until the girl had passed into the corridor. Upon Carconte's villainous face there set an expression of anticipation, not born of the greed for gold.

Clarkford, his daughter, Professor Crayton, Bret Sorelle and the crew of the ill-fated space ship were herded into a compartment of the raiding space-craft. Here, they could look from a series of narrow windows at the 'Interplanetary Limited' from which the pirates were removing the treasure and such other articles as caught their fancy.

Suzette Clarkford was a brave young lady, but being a woman, and in the face of such hopeless, distressing circumstances, she broke down and cried in the protective hollow of her father's arms.

"Don't anyone try to pass this doorway," advised one of the pirates. "There is no lock or door to keep you in, but whoever wishes to pass through this blue light is welcome to do so."

The man pressed a button across the corridor from the room in which the captives were gathered, and there sprang into sight another product of the scientific genius of Nez Hulan, a close set arrangement of violet shafts of light spread across the doorway. One of the crew of the interplanetary limited thrust a hand curiously towards the violet light before Jan Trenton could jerk him away from the doorway, but not before the tips of two of the man's fingers had been thrust into the rays of deep violet hue.

"Keep away from that, if you value your life!" exclaimed the astronaut. "It is more effective in keeping us imprisoned here than a locked door!"

The man now stared aghast at the tips of his two fingers which had turned black under the exposure to the violet shafts of light. He complained of no pain, but as he took the injured members between the fingers of his other hand, the black tips fell away to the floor like charred wood.

"What if you had stuck your head through instead of your fingers?" remarked Sorelle.

From then on, every one of the captives kept at a respectful distance from the doorway of their cell.

The pirates were engaged in removing the shipment of gold, platinum and precious stones from the "Interplanetary Limited." During the transfer of the vast riches, their prisoners within the pirate craft saw none of their captors.

Suddenly a cry from one of the crew of the interplanetary space-ship drew their attention to the windows of their cell where a view could be had of the space ship.

"We are doomed!" exclaimed the man. "We shall never escape them! Look at that!"

Everyone looked—and what they saw chilled them with the horror of the situation. The yellow ray from the "Jolly Roger" played over the side of the ill-fated space liner, tearing great gaping holes in the side of the ship which now had been thoroughly looted by the moon pirates."

"THEY'RE destroying the 'Limited!'" swore Sorelle. "The dirty dogs!"

"We shall be taken prisoners, that's sure," said Trenton.

"To the moon!" ejaculated Professor Crayton dismally.

"Isn't there some way we can buy them off—or do something to make them let us go?" pleaded Brentley terror-sticken.

"What would we do, now that our

ship is destroyed?" asked one of the crew.

"But—but—they are apt to kill us!" replied the shaking voice of the frightened co-pilot.

"You mean that seeing they have the treasure they will cover up their foul deed by——"

A terrific explosion cut short the words of Clarkford, and those within the pirate space-ship felt a quiver run through the entire craft. The eyes of the group gazed in astonishment at the spot where the interplanetary limited had stood; it was gone!

"What—what happened?" questioned Professor Crayton. "It all occurred so quickly that I didn't see it!"

"They have sent the interplanetary limited, or what was left of it, speeding off into space out of the solar system so that their black deed will remain a mystery, and minimize the chances of being found out," announced Jan Trenton. "The question now concerns what they shall do with us."

"It's a cinch they're not going to let any of us return to the three worlds—not after this," stated Sorelle.

"But what shall they do to us?" asked Professor Crayton, his voice shaken.

"That you will soon find out, my Professor," rasped an unpleasant voice from the corridor.

The four passengers and the crew of the "Interplanetary Limited," the latter numbering eight inclusive of the two pilots, Trenton and Brentley, turned quickly away from their places at the window, from which they had been looking out into space.

The violet shafts of light within the doorway had disappeared and in their place stood the human-mechanical demon, Nez Hulan, while, behind him, the leering countenance of Carconte peered over his shoulder. A huge scar-faced brute of a man accompanied them, and aside from the three there were no others in sight. The voice of Hulan continued.

"Yes, Professor Crayton, you will soon find out what is to become of you. You are to serve an illustrious purpose in the interests of science, and together, you and I, we shall work out an interesting experiment I have had in mind for sometime. Do you remember Professor Climm at Fomar?"

"Why, yes," replied Professor Crayton reminiscently. "He was the man with whose murder you were charged—that is, one of the men."

"No—no, my dear Crayton," protested Hulan, his eyes gleaming in amusement. "The unfortunate case of Climm was merely the result of one of my experiments. If you remember, Climm occupied the room across from mine, and one morning he was found lying dead upon the floor of his chamber, the bones of his body being entirely decomposed."

"From that infernal machine in your room," accused Professor Crayton who had for the moment forgotten his situation, and whose voice arose in righteous wrath.

"But anyway," continued the human robot, waving aside the accusation with an impatient gesture of his steel arm, "that is all immaterial to the subject I have in mind. Do you remember his successful experiment with the dog, in which he decapitated the animal and kept it alive for an indefinite period of time, the head in one section of the laboratory and the body in another?"

"Yes—I saw the animal," replied Crayton. "It seems that by an elaborate system of wiring and tubes connecting the two widely separated sections of the creature's anatomy he kept the dog alive for some time—until tiring of the experiment he killed the animal."

"I know," said Hulan. "I worked with him upon the experiment, and aided

him in the perfection of several principles regarding it."

"Yes," followed Crayton.

"You and I are going to conduct that very same experiment just as soon as we get back to the moon," announced Hulan, cryptically.

"WE are?" greeted the perplexed professor.

"Yes!" clicked the mechanical-limbed man.

"With a dog?" asked the professor curiously.

"No, a man!" was the ominous retort.

"But, that is murder!" cried Crayton in alarm.

"Not from a scientific point of view, my professor," answered the master mind of the moon pirates.

"But who will submit to such an experiment?" queried the professor weakly, plainly aghast at this man's inhuman attitude, with its cruel disregard for human life and suffering.

"You will!" snapped the human-robot with terrible finality in his tone, and a merciless sneer of contempt upon his pale features.

"No—no—no, not that!" pleaded Crayton, shivering so dreadfully that he tottered weakly to his knees and sought support by grasping a near-by table. "I'll do —— —— anything but that!"

The man continued to babble incoherently for his life, while Nez Hulan stood before him with a cruel, malicious smile upon his face. Hulan never laughed, and had he done so it is probable that his laughter would have been more chilling than his smile.

"Enough of this useless talk!" roared Carconte who had tired of the sport of terrorizing his victims. "I want those bonds! Give them to me!"

In view of the fact that resistance was utterly useless and foolhardy, Clarkford immediately handed over the flat bundle of papers he had kept within an inner pocket. Eagerly, the pirate seized them, and gave the bonds a cursory glance, shoving them inside his loose-fitting blouse.

"And now as for the rest of you," continued Caronte, "you have a choice of joining up with us in the brotherhood of our ranks, or else it is death—perhaps worse, if Hulan takes a notion to carve you up!"

"I'll join—I'll join!" shouted Crayton feverishly.

"You'll do nothing!" retorted Carconte. "Your mangy, old carcass wouldn't be worth the room it takes up! Hulan can have you if he wishes!

"Now then, who else will volunteer to join us?"

Hesitatingly, as if a bit uncertain, Brentley and two of the crew stepped forward.

"So—oh!" laughed Carconte. "We have three likely looking chaps who would honor our band with their membership!"

With swift, calculating eyes, the leader of the moon pirates appraised them.

"Very good—all fine material!" he said. "Stand aside from the rest!"

"What of you?" he asked Sorelle.

"I'll see you in hell first!" replied the adventurer, his eyes snapping.

Instead of being angered by the affront, the pirate was amused.

"Here is a man worthy of our mettle. Too bad such a man must die, eh, Hulan?" observed Carconte.

"Leave him to me," retorted the aluminum headed man. "A slight operation of the brain will cure him—and if you desire him, why he shall become one of us, and a fine pirate he should make."

AND so Sorelle, with Jan Trenton and another reluctant member of the crew, were ranged alongside of Brentley

and the two who had volunteered with the co-pilot.

"The rest of you die!" said Carconte. "Except the lady. I shall attend to her as soon as we reach the moon."

"Save that man," said Hulan pointing a steel finger at Clarkford. "I wish to experiment upon him also."

Suzette Clarkford gave a shriek and fainted—into the arms of Jan Trenton who leaped forward and caught her as she fell.

"That leaves two of you for the tube," said Carconte, and then he turned to the scar-faced villain who stood silently eyeing the group of prisoners. "Have the ship stopped at once, and the gun prepared; we have two reluctant passengers who wish to leave."

CHAPTER V

The Emblem of Death

THE man hurried away. The two remaining members of the crew who had been left, following the selection for the experiments of Hulan and the additions to the ranks of the moon-pirates, stood bravely with set, white faces. They were fully prepared for whatever terrible end the pirate leader had in store for them. He had mentioned a gun. Were they to be shot to infinitesimal fragments from the mouth of a cannon? It was not long before they found out.

"Come along!" ordered Carconte." All of you!"

The pirate chief started through the doorway, and the iron arm of Hulan silently beckoned for the rest to follow. The dozen prisoners from the 'Interplanetary Limited' filed from the room out into the corridor, down which they walked for a short distance, until Carconte led the way into another chamber of the space craft. Before them lay a mass of machinery and equipment.

"Seven hundred years ago," said Carconte, "the pirates disposed of all those for whom they had no use by making them walk the plank into the ocean. Sometimes they tied them to the mast and blew up the ship—that, too, was a good way, but here in space we are under different conditions in a far advanced age of progress. Planks and watery depths are not associated with space flyers. Instead of the plank we have this."

Carconte pointed to a long cylinder which projected through the side of the space ship.

"Attend the gun, Terseg!" ordered Carconte to a man with squint eyes and a long peaked nose.

The pirate sprang forward and twisted several levers at the base of the cylinder. The top opened to reveal a compartment seven feet long and three feet wide within the interior of the cylinder.

"This is the gun," said Carconte. "You all know the destructiveness of the atom's explosions within a confined space. An object placed within this cylinder is disintegrated within the short space of a few minutes by atomic combustion and radio activity, being reduced to its component elements which are ejected into space. Which of you two men wish to be the first?"

The pirate chief grinned evilly, while Hulan's face wore its usual sardonic smile, possibly seasoned at this moment with an expression of anticipation, for his usual impassive face wore very few varieties of expressions at any time. The six or seven pirates within the room wore broad grins as if the disintegration of two of their fellow men was a huge joke.

One of the men stepped forward.

"Get in!" said Terseg, pointing to the cylinder's compartment.

"The man lay face upward at full length within the cylinder's interior, his

white, ashen countenance portraying his fatalistic resignation to the unavoidable hopelessness of the situation. With the jerk of a lever, Terseg closed the upper half of the hollow cylinder down over the recumbent man and humanity had its last view of a brave engineer of an interplanetary flyer. Turning a wheel upon the base of the cylinder, Terseg consulted a dial upon the wall to one side of the gun.

"WHEN the needle of that dial goes all the way around once, it will signify that the man is no more, and that the gun is loaded for its shot into space," elucidated Carconte for the benefit of the horrified group of prisoners.

Slowly the needle crept around the dial, finally, though it seemed ages for those who were looking upon it for the first time, the needle completed the circuit of the dial.

"Watch the muzzle of the gun," directed Carconte, waving a hand towards the window of the craft through which the extremety of the cylinder could be seen.

Like an irresistible magnet the muzzle of the disintegrator gun drew the attention of all as they stared in horrid fascination at the anticipated spectacle.

"Get ready, Terseg!" ordered Carconte.

The Terseg placed a hand upon the knob which studded the wall alongside of the dial.

"Fire!"

From the mouth of the gun there burst a streak of irridescent flame, and the occupants of the pirate craft were conscious of a slight concussion which shook the space flyer with a vague, perceptible tremor. A silent tribute enfolded the captives. A wicked laugh from Carconte shattered the silence.

"You're next!" he motioned to the remaining victim. "Get in there and see if you can make a prettier flash of fire!"

Again his iniquitous laugh sounded throughout the chamber, and was joined by the laughter and chuckles of his men. The second man stepped forward, took a farewell look out of the window of the flyer at a little red planet whose dull eye shone steadily from out of the infinitude of space, and then prepared for his dissolution and projection into eternity. Again the Terseg closed the cylinder upon the victim of the moon pirates, and again there followed the long, drawn out pause of a few minutes while the needle crawled around the dial. Then came the irridescent streak of light sending the atomic remains of the second man off into the stellar void between worlds to join those of the first.

"And what have we left?" asked Carconte more to himself than to anyone else. "You want these two for experiments, do you not?"

The pirate chief pointed to Clarkford and Crayton, turning to Hulan for confirmation of the latter's intentions.

"Yes," replied Hulan.

"And these," said Carconte, pointing to Brentley and two of the crew, "are the volunteers."

"Those other three must be operated upon to remove the unwillingness from their brains, before they will make good pirates," said Hulan, pointing to Sorelle, Trenton and the remaining member of the crew who had all preferred death to joining the outlawed ranks of the moon pirates. Because of physical capability, they were desired by Carconte and his mechanical limbed confederate.

"And the woman," said Hulan, the cruel lines of his mouth twisting downward. "The atom gun is ready for her."

"No," said the scar-faced brute who had listened to the words of Carconte and Hulan. "I'll give half my gold to the general fund is she may be spared to me!"

His evil face with the long red furrow plainly writ across his grizzled visage beneath the stubble of unkempt beard, peered up at the pirate chieftain, while his fingers twitched nervously as he stole covetous glances at Suzette Clarkford who had now emerged from her faint.

"You will, will you?" roared the enraged Carconte. "So—you would aspire to own the woman, would you—and give half of your gold for her? What makes you think you are going to get any of the gold! After looking at you, I believe the lady would much prefer the disintegrator gun."

Scar-face wilted beneath the torrent of abuse which his superior had heaped upon him, as well as from the yells of derision and laughter from the other pirates.

"I HAVE her fate all settled, and it will be a far better one than our considerate Scar-face offers. She shall not be sacrified to the gun; she will be reserved to serve a more noble purpose." This last sentence the boastful pirate leader directed at Hulan.

Suzette Clarkford shuddered at the three plans which had been outlined for her by the pirates, and now the disintegrator gun appeared to her not as a terrible weapon to be classified with the iron maiden and such other damnable creations of antiquity, but as a machine of merciful deliverance. She envied the two who had previously been shot into oblivion by the disintegrator gun, and could realize that theirs had been the most compassionate fate to be meted out at the hands of the moon pirates.

"And now, you three volunteers," said Carconte, pointing to Brentley and his two associates, "before you take the oath of the brotherhood, and become moon pirates, you must receive our insignia. When we reach the rendezvous upon the moon, you will have the oath administered to you. Hulan, you and Luddock brand these three men with the insignia. The unwilling cannot receive it until their brains have been slightly altered under the capable hands of Hulan."

A tall, lanky pirate, evidently Luddock, beckoned to the three men who, actuated by cowardice and disloyalty, had agreed to evade any severe consequences to themselves by voluntarily becoming buccaneers of space. Luddock led them to a complicated piece of apparatus which arose shoulder high from the floor. Hulan took a position behind it where he tinkered a moment. A strange light enveloped the machine, and then Luddock spoke to Brentley.

"Shove that sleeve of your right arm back, and put your arm through that hole."

The pirate pointed to a circular, padded hole in the machine. Brently did as he was directed, though a bit hesitant as if he feared something. Shaking, and slowly, he inserted his arm into the machine.

"To the full length!" commanded Carconte, looking on.

The awed co-pilot of the interplanetary limited did as he was instructed. Upon the other side of the machine Hulan pressed a few buttons and levers, the light, of an unnameable tint, gaining intensity. The face of Brentley underwent no sudden change. Only a look of stupid surprise slowly mantled his countenance, replacing the look of fear and dread as if something he had expected to occur had not happened.

"Remove your arm," said Hulan after a moment or so.

Brentley did so, looking hastily at it as he withdrew the arm. From between the wrist and forearm there glared at him the black silhouette of a skull and cross bones, the emblem of piracy

and death! Beneath this was the outlines of a crescent moon.

"A GOOD impression," remarked Luddock. "Let's see how the other side came out."

Taking Brentley's arm, the pirate turned it around and there to Brentley's surprise was another skull and cross bones with the accompanying moon's crescent.

"Two of them!" ejaculated Brentley.

"No, one of them," corrected Luddock. "It goes all of the way through your arm—even through the bone."

"You are all finished for the time being," said Carconte to Brentley. "Hurry up, you two; finish off those others, and we'll get back to the moon."

It took but a short time to place the insignia of the moon pirates upon the other two and the pirates all rolled back their right arm sleeves to display the devilish emblems which adorned their forearms. Below the skull and cross bones of some of the pirates, there was outlined a quarter moon while a few bore full moons.

"Those quarter moons and full moons are overprinted upon the crescents following some special mark of service or bravery," explained Carconte. "They are not conferred aboard ship, but only in the recesses of our caverns which you will shortly see. Zind is to have his crescent replaced by a quarter moon just as soon as our ship reaches home."

"Let us get under way," suggested Hulan. "This is a bad place in which to be caught."

"Any place is bad enough," said Carconte. The sooner we get back, the less chances we have of being seen by the telescopes of the three worlds."

The moon-pirates headed for the earth's satellite.

Their hideout, discreetly located upon the side of the moon which never faces earth, was out of sight of all prying telescopes. The prisoners, with the exceptions of Brentley and the two members of the crew who had joined the ranks of the moon pirates, were returned once more to their original cell, from where they watched the descent to the moon. They were all in rather gloomy spirits, especially Professor Crayton who raved and babbled incoherently.

"Don't give up hope!" reassured Trenton to the girl who was sobbing gently. "Those moon pirates went a step too far when they picked on the 'Limited' to rob and capture its passengers. It is less than fifteen minutes ride from the earth to the moon, and just as soon as it is found that the 'Interplanetary Limited' has mysteriously disappeared without a radio communication of any kind, there will be a space-wide search to the boundaries of the solar system with powerful telescopes, and when they do not pick out our craft, or do not hear from it, the matter will be thoroughly investigated."

"By that time it will be too late," said Clarkford. "They will have no more idea of where to look for us, or realize that we are so close to the earth, than we knew beforehand that there was such a lawless band as the moon-pirates."

THE logic of Clarkford's reasoning silenced the young astronaut for a moment and then he spoke.

"Don't be so pessimistic. I have been in tighter jams than this before—and I'm still here," he reminded them.

"I believe in your philosophy, Trenton!" said Sorelle. "What we must do is not abandon hope, but watch for an opportunity and hope for the best."

"They can't have my head—I won't let them!" raved Crayton from a stool where he sat with his head in his hands, staring wild-eyed at the ceiling. "I'm

not going to a living death—Climm was right, that's what it was, and he put the dog out of its misery!"

"Poor man," said the girl, "he has gone demented since talking with that terrible machine man!"

"And I little blame him," observed Sorelle, gazing in pity at the botanist whose mental faculties had been reduced to a wreck through the abject terror inspired in him by the human robot. "That man would give almost anyone the creeps."

"I wonder which of those craters is our destination," observed Quenden, the remaining member of the crew who had not voluntarily joined the ranks of the pirates, and who had escaped the disintegrator gun through a desirability on the part of the moon pirates to alter his intentions by a slight brain operation.

"I, too, wonder," mused Sorelle as the two gazed down upon the pock-marked surface of the great, airless globe.

"We are descending rather rapidly," said Trenton. "See how fast the moon is growing in proportion. Such a speed would be impossible if the moon possessed an atmosphere. It is rushing right up at us!"

"Have you ever been upon the moon before?" queried Sorelle.

"Yes—many times," replied Trenton.

"Do you think they will put us under the knife as soon as we get there?" remarked Quenden. "I have no desire for them to work on my brain."

"I can't say," said Trenton. "I imagine they will give us a few days in which to change our minds and become moon-pirates without the necessity of a surgical operation."

"Can they accomplish it?" asked Clarkford.

"I believe that Hulan can accomplish almost anything which is devilish," replied Jan Trenton.

"He has the mind of a fiend!"

"That comes of bringing the dead back to life," said Quenden cryptically. "It was too bad that the meteor didn't destroy his head entirely, instead of only fracturing his skull that time."

THE girl screamed suddenly, electrifying the group of men into action.

"Save him—somebody! Save him quick!"

There before their eyes across the room stood the Martian botanist, muttering to himself, and advancing to the doorway across which the deadly shafts of violet light played constantly. His mutterings rose to a yell, and his eyes blazed with a strange light as he ran for the doorway.

"Nez Hulan shall not have me!" Crayton screamed in a shrill voice. "I'll escape him!"

Jan Trent and Bret Sorelle leaped forward simultaneously to drag back the crazed professor from the doom of the deep violet rays of destroying intensity. Both were too late for with a final, despairing wail, the Martian professor plunged headlong through the shafts of light to the floor of the corridor beyond the doorway.

A number of the pirates, hearing the commotion, came running down the passage. Hulan and Carconte soon appeared.

"There goes one of your experiments!" said Carconte, pointing to the slumped form of Professor Crayton whose face had turned black.

Hulan gave the corpse a sharp, disgusted kick with his foot. The body crumpled up into a mound of black dust and charred clothing.

"I can use another of them," he frowned. "Clean up this mess!"

Some of the pirates immediately obeyed the order of the aluminum-

skulled man who was the next in command under Carconte.

"Turn off those rays in the doorway, too," said Carconte, "before more of them cheat us of their lives. I'll place a guard over them until we leave the ship, which won't be long. We are coming down now."

"We haven't searched them for weapons yet," observed one of the pirates.

"True!" remarked Carconte as if the idea had not occurred to him before. "Search them, though I believe they carry no weapons, for space liner passengers rarely carry them. Be sure to search that astronaut, though, he might have a gun on him if any of them have."

A pirate felt carefully about the clothes of each of the captives. One dark skinned, villainous looking fellow approached the girl who shrank from him.

"I have no weapons!" she said in alarm.

Still the man came forward to where she had backed up against the wall. Swiftly he ran his hands over the pockets of her outer garments in search of weapons, and when he had satisfied himself that she carried none, he drew her toward him, his eyes inflamed with reckless passion.

JAN TRENTON was nearest the girl, and the first thing the pirate knew, the fist of the young astronaut had crashed into his face, and he was sitting upon the floor. With murder in his heart, the man jerked a ray gun from his pocket and prepared to burn a hole through the vitals of the astronaut.

As the enraged pirate sprang forward to consummate the dastardly act, a set of steel fingers closed upon his windpipe and a cold voice hissed in his ear:

"Drop that gun!"

The tightening fingers threatened to snap the neck of the pirate, and the man, gasping for breath and with fear and surprise in his heart, dropped the pistol. Hulan had saved the life of Jan Trenton not for any humane reason but for the benefit of the moon pirates, or perhaps to meet a more terrible end at the hands of the machine man himself. The face of the pirate wilted with fear, and his countenance grew livid as he looked into the eyes of Hulan—the very eyes of death itself!

"You fool!" his metallic voice clicked as he cast the terror-stricken pirate from him. "Do you want to kill another, after we have already lost one?"

The man with the aluminum braincase and the rubber heart now turned to his pirate chief.

"You see, Carconte, what I told you about the woman is true! Already she is bringing us trouble! It would have been far better to have consigned her to the gun!"

"She'll bring no trouble when we reach the moon," grinned Carconte. "I have a special place for her within my private quarters, where she shall not be bothered by the men. There will be no more trouble."

Hulan, however, shook his metal capped head in a dismal gesture of hopeless resignation which portended grim forebodings of the evil which would come to them. Women, he had always maintained, brought only misfortune and disaster to such as the moon-pirates.

END OF PART I.

The Plutonian Drug

By CLARK ASHTON SMITH

Life, in the future centuries, is touched upon in this story with the depiction of the strange and prophetical effects upon the human intellect of a strange chemical imported from, what may be, the most distant of the planets.

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"IT is remarkable," said Dr. Manners, "how the scope of our pharmacopoeia has been widened by interplanetary exploration. In the past thirty years, hundreds of hitherto unknown substances, employable as drugs or medical agents, have been found in the other worlds of our own system. It will be interesting to see what the Allan Parquar expedition will bring back from the planets of *Alpha Centauri* when—or if—it succeeds in reaching them and returning to earth. I doubt, though, if anything more valuable than selenine will be discovered. Selenine, derived from a fossil lichen found by the first rocket-expedition to the moon in 1975, has, as you know, practically wiped out the old-time curse of cancer. In solution, it forms the base of an infallible serum, equally useful for cure or prevention."

"I fear I haven't kept up on a lot of the new discoveries," said Rupert Baleoth the sculptor, Manners' guest, a little apologetically. "Of course, everyone has heard of selenine. And I've seen frequent mention, recently, of a mineral water from Ganymede whose effects are like those of the mythical Fountain of Youth."

"You mean *dithni*, as the stuff is called by the Ganymedians. It is a clear, emerald liquid, rising in lofty geysers from the craters of quiescent volcanoes. Scientists believe that the drinking of *dithni* is the secret of the almost fabulous longevity of the Ganymedians; and they think that it may prove to be a similar elixir for humanity."

"Some of the extraplanetary drugs haven't been so beneficial to mankind, have they?" queried Baleoth. "I seem to have heard of a Martian poison that has greatly facilitated the gentle art of murder. And I am told that *nnophka*, the Venerian narcotic, is far worse, in its effects on the human system, than is any terrestrial alkaloid."

"Naturally," observed the doctor with philosophic calm, "many of these new chemical agents are capable of dire abuse. They share that liability with any number of our native drugs. Man, as ever, has the choice of good and evil. . . . I suppose that the Martian poison you speak of is *akyaloë*, the juice of a common russet-yellow weed that grows in the oases of Mars. It is colorless, and without taste or odor. It kills almost instantly, leaving no trace, and imitating closely the symptoms of heart-disease. Undoubtedly many people have been made away with by means of a surreptitious drop of *akyaloë* in their food or medicine. But even *akyaloë*, if used in infinitesimal

doses, is a very powerful stimulant, useful in cases of syncope, and serving, not infrequently, to re-animate victims of paralysis in a quite miraculous manner.

"OF course," he went on, "there is an infinite lot still to be learned about many of these ultra-terrene substances. Their virtues have often been discovered quite by accident—and in some cases, the virtue is still to be discovered.

"For example, take *mnophka,* which you mentioned a little while ago. Though allied, in a way, to the earth-narcotics, such as opium and hashish, it is of little use for anaesthetic or anodyne purposes. Its chief effects are an extraordinary acceleration of the time-sense, and a heightening and telescoping of all sensations, whether pleasurable or painful. The user seems to be living and moving at a furious whirlwind rate—even though he may in reality be lying quiescent on a couch. He exists in a headlong torrent of sense-impressions, and seems, in a few minutes, to undergo the experiences of years. The physical result is lamentable—a profound exhaustion, and an actual aging of the tissues, such as would ordinarily require the period of real time which the addict has 'lived' through merely in his own illusion.

"There are some other drugs, comparatively little known, whose effects, if possible, are even more curious than those of *mnophka.* I don't suppose you have ever heard of plutonium?"

"No, I haven't," admitted Balcoth. "Tell me about it."

"I can do even better than that—I can show you some of the stuff, though it isn't much to look at—merely a fine white powder."

Dr. Manners rose from the pneumatic-cushioned chair in which he sat facing his guest, and went to a large cabinet of synthetic ebony, whose shelves were crowded with flasks, bottles, tubes and cartons of various sizes and forms. Returning, he handed to Balcoth a squat and tiny vial, two-thirds filled with a starchy substance.

"Plutonium," explained Manners, "as its name would indicate, comes from forlorn, frozen Pluto, which only one terrestrial expedition has so far visited —the expedition led by the Cornell brothers, John and Augustine, which started in 1990 and did not return to earth till 1996, when nearly everyone had given it up as lost. John, as you may have heard, died during the return voyage, together with half the personnel of the expedition: and the others reached earth with only one reserve oxygen-tank remaining.

"This vial contains about a tenth of the existing supply of plutonium. Augustine Cornell, who is an old schoolfriend of mine, gave it to me three years ago, just before he embarked with the Allan Farquar crowd. I count myself pretty lucky to own anything so rare.

"THE geologists of the party found the stuff when they began prying beneath the solidified gases that cover the surface of that dim, starlit planet, in an effort to learn a little about its composition and history. They couldn't do much under the circumstances, with limited time and equipment; but they made some curious discoveries—of which plutonium was far from being the least.

"Like selenine, the stuff is a by-product of vegetable fossilization. Doubtless it is many billion years old, and dates back to the time when Pluto possessed enough internal heat to make possible the development of certain rudimentary plant-forms on its blind surface. It must have had an atmosphere

then; though no evidence of former animal life was found by the Cornells.

"Plutonium, in addition to carbon, hydrogen, nitrogen and oxygen, contains minute quantities of several unclassified elements. It was discovered in a crystalloid condition, but turned immediately to the fine powder that you see, as soon as it was exposed to air in the rocket-ship. It is readily soluble in water, forming a permanent colloid, without the least sign of deposit, no matter how long it remains in suspension."

"You say it is a drug?" queried Balcoth. "What does it do to you?"

"I'll come to that in a minute—though the effect is pretty hard to describe. The properties of the stuff were discovered only by chance: on the return journey from Pluto, a member of the expedition, half delirious with space-fever, got hold of the unmarked jar containing it and took a small dose, imagining that it was bromide of potassium. It served to complicate his delirium for a while—since it gave him some brand-new ideas about space and time.

"Other people have experimented with it since then. The effects are quite brief (the influence never lasts more than half an hour) and they vary considerably with the individual. There is no bad aftermath, either neural, mental or physical, as far as anyone has been able to determine. I've taken it myself, once or twice, and can testify to that.

"Just what it does to one, I am not sure. Perhaps it merely produces a derangement or metamorphosis of sensations, like hashish; or perhaps it serves to stimulate some rudimentary organ, some dormant sense of the human brain. At any rate there is, as clearly as I can put it, an altering of the perception of time—of actual duration—into a sort of space-perception. One sees the past, and also the future, in relation to one's own physical self, like a landscape stretching away on either hand. You don't see very far, it is true—merely the events of a few hours in each direction; but it's a very curious experience; and it helps to give you a new slant on the mystery of time and space. It is altogether different from the delusions of *mnophka.*"

"It sounds very interesting," admitted Balcoth. "However, I've never tampered much with narcotics myself; though I did experiment once or twice, in my young, romantic days with *cannabis Indica.* I had been reading Gautier and Baudelaire, I suppose. Anyway, the result was rather disappointing."

"You didn't take it long enough for your system to absorb a residuum of the drug, I imagine," said Manners. "Thus the effects were negligible, from a visionary standpoint. But plutonium is altogether different—you get the maximum result from the very first dose. I think it would interest you greatly, Balcoth, since you are a sculptor by profession: you would see some unusual plastic images, not easy to render in terms of Euclidean planes and angles. I'll gladly give you a pinch of it now, if you'd care to experiment."

"You're pretty generous, aren't you, since the stuff is so rare?"

"I'M not being generous at all. For years, I've planned to write a monograph on ultra-terrestrial alkaloids; and you might give me some valuable data. With your type of brain and your highly developed artistic sense, the visions of plutonium should be uncommonly clear and significant. All I ask is, that you describe them to me as fully as you can afterwards."

"Very well," agreed Balcoth. "I'll try anything once." His curiosity was somewhat inveigled, his imagination se-

duced, by Manners' account of the remarkable drug.

Manners brought out an antique whisky-glass, which he filled nearly to the rim with some golden-red liquid. Uncorking the vial of plutonium, he added to this fluid a small pinch of the fine white powder, which dissolved immediately and without effervescence.

"The liquid is a wine made from a sweet Martian tuber known as *ovvra,*" he explained. "It is light and harmless, and will counteract the bitter taste of the plutonium. Drink it quickly and then lean back in your chair."

Balcoth hesitated, eyeing the golden-red fluid.

"Are you quite sure the effects will wear off as promptly as you say?" he questioned. "It's a quarter past nine now, and I'll have to leave about ten to keep an appointment with one of my patrons at the Belvedere Club. It's the billionaire, Claud Wishhaven, who wants me to do a bas-relief in pseudo-jade and neo-jasper for the hall of his country mansion. He wants something really advanced and futuristic. We're to talk it over to-night—decide on the motifs, etc."

"That gives you forty-five minutes," assured the doctor—"and in thirty, at the most, your brain and senses will be perfectly normal again. I've never known it to fail. You'll have fifteen minutes to spare, in which to tell me all about your sensations."

Balcoth emptied the little antique glass at a gulp and leaned back, as Manners had directed, on the deep pneumatic cushions of the chair. He seemed to be falling easily but endlessly into a mist that had gathered in the room with unexplainable rapidity; and through this mist he was dimly aware that Manners had taken the empty glass from his relaxing fingers. He saw the face of Manners far above him, small and blurred, as if in some tremendous perspective of alpine distance; and the doctor's simple action seemed to be occurring in another world.

He continued to fall and float through eternal mist, in which all things were dissolved as in the primordial nebulæ of chaos. After a timeless interval, the mist, which had been uniformly grey and hueless at first, took on a flowing iridescence, never the same for two successive moments; and the sense of gentle falling turned to a giddy revolution, as if he were caught in an ever-accelerating vortex.

Coincidentally with his movement in this whirlpool of prismatic splendor, he seemed to undergo an indescribable mutation of the senses. The whirling colors, by subtle, ceaseless gradations, became recognizable as solid forms. Emerging, as if by an act of creation, from the infinite chaos, they appeared to take their place in an equally infinite vista. The feeling of movement, through decrescent spirals, was resolved into absolute immobility. Balcoth was no longer conscious of himself as a living organic body: he was an abstract eye, a discorporate center of visual awareness, stationed alone in space, and yet having an intimate relationship with the frozen prospect on which he peered from his ineffable vantage.

II

WITHOUT surprise, he found that he was gazing simultaneously in two directions. On either hand, for a vast distance that was wholly void of normal perspective, a weird and peculiar landscape stretched away, traversed by an unbroken frieze or bas-relief of human figures that ran like a straight undeviating wall.

For awhile, the frieze was incomprehensible to Balcoth, and he could make nothing of its glacial, flowing outlines with their background of repeated

masses and complicated angles and sections of other human friezes that approached or departed, often in a very abrupt manner, from an unseen world beyond. Then the vision seemed to resolve and clarify itself, and he began to understand.

The bas-relief, he saw, was composed entirely of a repetition of his own figure, plainly distinct as the separate waves of a stream, and possessing a stream-like unity. Immediately before him, and for some distance on either hand, the figure was seated in a chair—the chair itself being subject to the same billowy repetition. The background was composed of the reduplicated figure of Dr. Manners, in another chair; and behind this, the manifold images of a medicine cabinet and a section of wall-panelling.

Following the vista on what, for lack of any better name, might be termed the left hand, Balcoth saw himself in the act of draining the antique glass, with Manners standing before him. Then, still further, he saw himself previous to this, with a background in which Manners was presenting him the glass, was preparing the dose of plutonium, was going to the cabinet for the vial, was rising from his pneumatic chair. Every movement, every attitude of the doctor and himself during their past conversation, was visioned in a sort of reverse order, reaching away, unalterable as a wall of stone sculpture, into the weird, eternal landscape. There was no break in the continuity of his own figure; but Manners seemed to disappear at times, as if into a fourth dimension. These times, he remembered later, were the occasions when the doctor had not been in his line of vision. The perception was wholly visual; and though Balcoth saw his own lips and those of Manners parted in movements of speech, he could hear no word or other sound.

Perhaps the most singular feature of the vision was the utter absence of foreshortening. Though Balcoth seemed to behold it all from a fixed, immovable point, the landscape and the intersecting frieze presented themselves to him without diminution, maintaining a frontal fullness and distinctness to a distance that might have been many miles.

Continuing along the left-hand vista, he saw himself entering Manners' apartments, and then encountered his image standing in the elevator that had borne him to the ninth floor of the hundred story hotel in which Manners lived. Then the frieze appeared to have an open street for background, with a confused, ever-changing multitude of other faces and forms, of vehicles and sections of buildings, all jumbled together as in some old-time futuristic painting. Some of these details were full and clear, and others were cryptically broken and blurred, so as to be scarcely recognizable. Everything, whatever its spatial position and relation, was re-arranged in the flowing frozen stream of this temporal pattern.

BALCOTH retraced the three blocks from Manners' hotel to his own studio, seeing all his past movements, whatever their direction in tri-dimensional space, as a straight line in the time-dimension. At last he was in his studio; and there the frieze of his own figure receded into the eerie prospect of space-transmuted time among other friezes formed of actual sculptures. He beheld himself giving the final touches with his chisel to a symbolic statue at the afternoon's end, with a glare of ruddy sunset falling through an unseen window and flushing the pallid marble. Beyond this there was a reverse fading of the glow, a thickening and blurring of the half-chiselled features of the image, a female form to which he had given

the tentative name of Oblivion. At length, among half-seen statuary, the left-hand vista became indistinct, and melted slowly in amorphous mist. He had seen his own life as a continuous glaciated stream, stretching for about five hours into the past.

Reaching away on the right hand, he saw the vista of the future. Here there was a continuation of his seated figure under the influence of the drug, opposite the continued bas-relief of Dr. Manners and the repeated cabinet and wall-panels. After a considerable interval, he beheld himself in the act of rising from the chair. Standing erect, he seemed to be talking awhile, as in some silent antique film, to the listening doctor. After that, he was shaking hands with Manners, was leaving the apartment, was descending in the lift and following the open, brightly-lighted street toward the Belvedere Club where he was to keep his appointment with Claud Wishhaven.

The Club was only three blocks away, on another street; and the shortest route, after the first block, was along a narrow alley between an office building and a warehouse. Balcoth had meant to take this alley; and in his vision, he saw the bas-relief of his future figure passing along the straight pavement with a background of deserted doorways and dim walls that towered from sight against the extinguished stars.

He seemed to be alone: there were no passers—only the silent, glimmering endlessly repeated angles of arc-lit walls and windows that accompanied his repeated figure. He saw himself following the alley, like a stream in some profound canyon; and there, mid-way, the strange vision came to an abrupt, inexplicable end, without the gradual blurring into formless mist, that had marked his retrospective view of the past.

The sculpture-like frieze with its archiectural ground appeared to terminate, broken off clean and sharp, in a gulf of immeasurable blackness and nullity. The last wave-like duplication of his own person, the vague doorway beyond it, the glimmering alley-pavement, all were seen as if shorn asunder by a falling sword of darkness, leaving a vertical line of cleavage beyond which there was—nothing.

Balcoth had a feeling of utter detachment from himself, an eloignment from the stream of time, from the shores of space, in some abstract dimension. The experience, in its full realization, might have lasted for an instant only—or for eternity. Without wonder, without curiosity or reflection, like a fourth-dimensional Eye, he viewed simultaneously the unequal cross-sections of his own past and future.

AFTER that timeless interval of complete perception, there began a reverse process of change. He, the all-seeing eye, aloof in super-space, was aware of movement, as if he were drawn back by some subtle thread of magnetism into the dungeon of time and from which he had momentarily departed. He seemed to be following the frieze of his own seated body toward the right, with a dimly felt rhythm or pulsation in his movement that corresponded to the merging duplications of the figure. With curious clearness, he realized that the time-unit, by which these duplications were determined, was the beating of his own heart.

Now, with accelerative swiftness, the vision of petrific form and space was re-dissolving into a spiral swirl of multitudinous colors, through which he was drawn upward. Presently he came to himself, seated in the pneumatic chair, with Dr. Manners opposite. The room

seemed to waver a little, as if with some lingering touch of the weird transmutation; and webs of spinning iris hung in the corners of his eyes. Apart from this, the effect of the drug had wholly vanished, leaving, however, a singularly clear and vivid memory of the almost ineffable experience.

Dr. Manners began to question him at once, and Balcoth described his visionary sensations as fully and graphically as he could.

"There is one thing I don't understand," said Manners at the end with a puzzled frown. "According to your account, you must have seen five or six hours of the past, running in a straight spatial line, as a sort of continuous landscape; but the vista of the future ended sharply after you had followed it for three-quarters of an hour, or less. I've never known the drug to act so unequally: the past and future perspectives have always been about the same in their extent for others who have used plutonium."

"Well," observed Balcoth, "the real marvel is that I could see into the future at all. In a way, I can understand the vision of the past. It was clearly composed of physical memories—of all my recent movements; and the background was formed of all the impressions my optic nerves had received during that time. But how could I behold something that hasn't yet happened?"

"There's the mystery, of course," assented Manners. "I can think of only one explanation at all intelligible to our finite minds. This is, that all the events which compose the stream of time have already happened, are happening, and will continue to happen forever. In our ordinary state of consciousness, we perceive with the physical senses merely that moment which we call the present. Under the influence of plutonium, you were able to extend the moment of present cognition in both directions, and to behold simultaneously a certain portion of that which is normally beyond perception. Thus appeared the vision of yourself as a continuous, immobile body, extending through the time-vista."

Balcoth, who had been standing, now took his leave. "I must be going," he said, "or I'll be late for my appointment."

"I WON'T detain you any longer," said Manners. He appeared to hesitate, and then added: "I'm still at a loss to comprehend the abrupt cleavage and termination of your prospect of the future. The alley in which it seemed to end was Falman Alley, I suppose—your shortest route to the Belvedere Club. If I were you, Balcoth, I'd take another route, even if it requires a few minutes extra."

"That sounds rather sinister," laughed Balcoth. "Do you think that something may happen to me in Falman Alley?"

"I hope not—but I can't guarantee that it won't." Manners' tone was oddly dry and severe. "You'd better do as I suggest."

Balcoth felt the touch of a momentary shadow as he left the hotel—a premonition brief and light as the passing of some night-bird on noiseless wings. What could it mean—that gulf of infinite blackness into which the weird freize of his future had appeared to plunge, like a frozen cataract? Was there a menace of some sort that awaited him in a particular place, at a particular moment?

He had a curious feeling of repetition, of doing something that he had done before, as he followed the street. Reaching the entrance of Falman Alley, he took out his watch. By walking briskly and following the alley, he would reach the Belvedere Club punctually. But if he went on around the next

block, he would be a little late. Balcoth knew that his prospective patron, Claud Wishhaven, was almost a martinet in demanding punctuality from himself and from others. So he took the alley.

The place appeared to be entirely deserted, as in his vision. Midway, Balcoth approached the half-seen door—a rear entrance of the huge warehouse—which had formed the termination of the time prospect. The door was his last visual impression, for something descended on his head at that moment, and his consciousness was blotted out by the supervening night he had previsioned. He had been sandbagged, very quietly and efficiently, by a twenty-first century thug. The blow was fatal; and time, as far as Balcoth was concerned, had come to an end.

THE END.

Atmosphere of the Planets

AMAZING STORIES has published so many tales of interplanetary travel that the question of the atmosphere of the planets has certainly presented itself to our authors and readers. Recently spectroscopic investigation of the atmosphere of the outer planets has led to the conclusion that Jupiter and perhaps a couple of others that have yielded to the investigation, have no oxygen whatever in their atmosphere, but have hydrogen, nitrogen and carbon, the latter and perhaps the nitrogen in the forms of ammonia and marshgas or parafin respectively. This would indicate that no beings, such as man and the animals of this world, could exist on these planets, irrespective of the fact that great Jupiter, at least, is far too hot for endurance by a terrestrial being. An odd consideration is that if oxygen were introduced by some convulsion of nature, there would probably be a gigantic explosion extending over the whole surface of the planet of Jupiter. We are still waiting to hear from Venus and Mars as to their respective atmospheres.

Through the Andes

By A. HYATT VERRILL

Our readers will be delighted to find a story by Verrill, which we are commencing in this issue. It treats of an adventurous trip through the Andes and is characterized by a varied personnel whose widely different characters are excellently depicted. Mr. A. Hyatt Verrill is a very high authority on the region in which the scene of this story is laid.

ANOTHER NEW SERIAL

PART I

CHAPTER I

Off for the Unknown

WHEN we had passed through Cajamarca we had heard rumors of bandits in the mountains. Then, at Porvenir, the Commandante had told us that ever since the last revolution, against the Dictator, Serrano, bands of outlaws had been robbing travelers in the hills. But Don Jaime, at the Hacienda de Dos Rios, had minimized the danger. The Commandante's outlaws, he declared, showing his strong even teeth in a smile and with one lean hand airily waving all bandits aside, were merely the remnants of the *insurrectos* who dared not show themselves at the towns and could not return to their own homes, for fear of arrest and a firing squad. "So what would you, señores?" he asked. " man must live—no? They may steal—yes. They may help themselves to sheep, to the cattle, to the corn and the chickens. But, *caramba,* do not the soldiers of the *gobierno* do the same? Yet would the Señor Commandante call *them* bandits? Bandits! Pouff! I myself ride over the passes and through the hills in the night as well as in the day, and do I see these so-dreadful brigands, these outlaws? *Madre de Dios*—no! Never, not at all, not one bandit do I meet. Insurrectos, *si*—ragged, half-starved rascals who, had their cause won, would of a truth be holding fat jobs like that of El Commandante. Cholos* mostly, who were led to take arms by those with more brains and less courage than themselves, who deserted them when they saw defeat. But bandits! Pouff, I say!"

And as El Commandante was a timid soul and wont to exaggerate all things—his own importance included—and as Don Jaime was in a position to know, we decided that brigands were the least of the dangers we faced on our expedition into the wild Achcacuna district. Besides, none of us were the sort to be much troubled by thought of banditti, even if we had taken the Commandante's words at their face value. We three had been in tight places before. All of us were old hands at the game. We could all shoot and shoot straight, and we had all met some pretty hard cases of *Homo sapiens* in our days. "Red," or more properly, Jimmy Neil, had once served on the Texas Rangers, and bad men had no terror for him. Saunderson, had traveled through brigand-infested

* Half-breed South American Indians.

Risking a shot from the hidden bandit, we peered from behind the shelter of rocks toward the great stone arch spanning the gorge.

portions of the Orient. And I had lived for so long among primitive savage tribes and traditionally hostile Indians that I had developed a sort of contempt for supposedly dangerous human beings, and discounted all tales of bad-men, red or white. And we didn't have much that would tempt genuine, dyed-in-the-wool bandits, even if they were in the hills. We weren't carrying money like the paymasters at the mines. On the contrary we were practically penniless as far as specie was concerned, for we were headed for a district where currency had no intrinsic value and we didn't have twenty-five dollars in real money among us. I think Red's Masonic ring was the only piece of jewelry in the outfit, and our watches were either Ingersolls or cheap nickel-plated timepieces. Of course there were our guns and ammunition, our food supplies and our camp outfit. But aside from the firearms and the food there wasn't anything that a bandit could sell or use, and the provisions weren't enough to tempt any brigand to risk his life. Oh, yes, there were the trade goods. But what outlaw would want glass beads, tin whistles, mouth organs, cotton ribbon, files, hoop iron, cheap butcher knives and scented soap—especially the soap?

And everyone in the country knew all about our expedition, who we were, what we had and where we were going, so there wasn't much fear of being held up by mistake. Everyone knew we were on a quasi-scientific exploring trip. Saunderson was a sportsman and had joined the party for the sake of the hunting and in the hope of getting a chance to bag some new game to add to his trophies—the spectacled Andean bear, the mountain jaguar, much like the prized snow-leopard of the Himalayas, or even one of the semi-mythical Andean wild goats that the Indians of the high altitudes described. But I think he really went along as much for the adventure entailed by entering an unexplored territory as with the expectation of getting big game, and I'm sure he would have been satisfied with a few vicuñas, a guanaco or two and an ordinary jaguar. I never did know just why I took Red along. Perhaps because his whimsicalities amused me and I felt he would be good company, perhaps because he asked me to take him, and somehow people never could refuse Red, or again it may be that some sixth sense or intuition told me that Fate had decreed that his paths and mine were to cross and that my life—all our lives—would depend upon him. Whatever the reason, Red was along with us. As for myself, I had long wanted to explore the Achcacuna country. It was practically unknown. No white man—at least no white man I had been able to find—had ever explored it. As far as known, none of its inhabitants—if it contained any—had ever appeared in the outlying villages and towns. For some wholly inexplicable reason the ordinary Indians—the Quichuas and Collas—considered it taboo, and not even the government survey planes ever had flown across more than one corner of the district. But even if they had, the pilots couldn't have seen anything, for the Achcacuna was a jungle-covered valley—or series of valleys—hemmed in by vast mountain ranges. It was, in fact, a sort of detached section of the trans-Andean Montaña—the tropical jungle country of the Amazon tributaries—hidden away among the mountains as if it had been lifted bodily and carried over the eastern ranges and dropped down a couple of hundred miles from where it belonged; a bit of the tropics surrounded with snow-clad peaks.

That much was known from what the men in the army planes had reported. But the reason that I was so keen on

getting into the Achcacuna was because I had a hunch that there, if anywhere, I might find remains of the first cultured inhabitants of South America—the pre-pre-Incans from whom the ancient civilizations had sprung. Always, I had contended that the Incan culture and the cultures preceding it, yes, even the immeasurably ancient Tiahuanacan civilization, had come from the east. From my years of study of the Peruvian, Bolivian and other remains, I felt convinced that the religions, the arts, the astronomical and the engineering knowledge of these peoples had been introduced by way of the Amazon, and thence over the Andes, by civilized men from Atlantis of the Mediterranean, thousands of years before the first Inca had appeared on the shores of Lake Titicaca. And if my theory was correct, then it would be logical to assume that these wanderers from the east, coming from semi-tropical lands, penetrating—slowly and perhaps after many years—the Amazonian Valleys, would have established permanent homes, perhaps great cities, in some verdured, warm and sheltered spot before attempting to explore or cross the austere, barren Andes and the deserts. And the Achcacuna was just that type of spot.

AS I said before, I had wanted to explore the district for years. But I had never had the opportunity or the necessary funds before. Then I had met Saunderson. He was not only a born adventurer and a sportsman, but he was wealthy. He was also Scotch; but being of that proverbially canny race did not prevent him from furnishing the wherewithal for the expedition, when I chanced to mention the Achcacuna and my theories in regard to it.

"Ripping!" he had ejaculated. "Tell you what I'll do, old man. You know the country here. You want to hunt about for tumbled-down old ruins and dig up old bones, and I want to have a go at potting new game. If no chaps have been up in that jolly country, there should be good sport. I'll supply the pounds, shillings and pence—or the equivalent—and you'll supply the experience and scientific knowledge, you know. Partners, you see! You'll get all the credit for any discoveries you make. I'll get my trophies and have a devilish good time. What say?"

Naturally I said yes.

And now Saunderson was getting all the shooting and all the adventure he could have asked for—and more.

BUT I'll have to back-trail and start at where we were approaching Macapuy Pass, for that is where the story really begins. We had made very good time for we were going light. Aside from Red, Saunderson and myself, there was Sam, my black West Indian camp boy who had been with me on many an expedition; two stocky Cholo *arrieros* or muleteers, or still better donkeyteers, for our "mules" were shaggy little burros; two Quichua Indians with their string of llamas; and "Karen" a bow-legged, monkey-faced Malay dwarf who was Saunderson's servant, valet, cook, body-guard, gun-bearer and clown combined. Not having expected any trouble with hostiles of any sort we had not provided much of an arsenal. Personally I never carry arms on my expeditions, as I have always found that the presence of weapons arouses suspicions on the part of the Indians and leads to trouble. But Saunderson of course had his guns—a high-powered rifle, a lighter rifle, and a double-barrelled shot gun, in addition to a Browning automatic which he carried to give the *coup de grace* to any wounded beasts he might bring down. As for Red, he was never without a couple of forty-five

Colts worn "low an' tied" as he expressed it, a habit acquired when on the Texas Ranger border patrol. "Naw, I don't pack 'em 'cause I reckon to need 'em," he drawled, when Saunderson jokingly asked him who he was gunning for one day. "But I jus' don't feel natural without 'em. Feel jus' as undressed without my six-guns as I would without my pants."

The Cholos, of course, had no weapons. The Indian llama drivers carried their woven woolen slings, as is the invariable custom, and Karen, who, as soon as we left civilization discarded conventional garments and appeared clad in sarong, turban and jacket, wore a crooked-bladed kris thrust through his waist-cloth. As for Sam—never to my knowledge had he fired a gun or a pistol or carried a weapon of any sort—no, not even a razor. Hence I was vastly surprised when, after leaving Don Jaime's hacienda, I discovered that he had provided himself with a pistol. As a weapon of offense or defense it was about as useful as a child's popgun; but many a collector would have prized it as an antique, for it was a long-barreled duelling pistol with percussion lock. In its day it had been a handsome and costly weapon, its stock mounted with silver and its lock-plate and barrel richly engraved. But time and lack of care had played havoc with it. It was rusty, the stock worm-eaten, bits of the silver inlay missing. But Sam—who confessed that he had secured it from the Majordomo of the hacienda in exchange for a multi-bladed pocket knife—was as proud of his "gun," as though it had been the latest and most deadly of weapons.

"Ah, happen' to overhear 'bout tha bandits," he explained, when I questioned him about the relic. "An' Ah considah tha aspec's o' tha' situation an' arrive to tha conclusion Ah bes' provide mese'f wif means for meetin' any potential'ties what might arise fo' to confront we. Yaas, sir, Chief, Ah'm a man o' peace, but Ah boun' protec' me life an' tha provisions wha's in me care."

"But, good Lord, Sam, that thing isn't any good. And you never used a gun in your life!" I exclaimed.

Sam grinned. "Ah don't contradic' yo' assumptions, Chief," he replied. "But Ah goin' clean he up, spick an' span, an' load he jus' tha same. Ah know Ah don' never been call on to shoot off a gun, an Ah pray tha Lord Ah don't be fo'ced to tha' necess'ty. But ef Ah does Ah goin' try me bes' an' arsk tha Lord fo' to stan' by me. An' mebbe 'tween me an' tha' Lord an' this ol' gun Ah'm goin' hit what Ah aim for."

Of course Sam's pistol was a source of no little raillery and amusement on our part, and the only reason I have mentioned the matter, and have devoted so much space to it, is because of later events which transpired.

As I was saying, we had made good time. From the Hacienda de Dos Rios we had climbed steadily up the Andean slopes, following the old Incan road most of the way, and heading for the Paso de Macapuy, the lowest point at which we could cross the range. In ancient times the Incas had maintained a suspension bridge across the Supay River, thus affording a route which climbed the ranges by a series of gentle grades to a much lower pass than that of Macapuy. But the bridge had rotted away centuries ago, it never had been rebuilt, and the old Incan route had been abandoned beyond its termination at the verge of the rushing torrent. From that point, the trail to Macapuy led almost straight up the steep slope of the mountainside. It was hard going. The trail was merely a llama path, it was choked with loose stones and boulders fallen from the slopes above, and, despite the altitude, the sun beat down mercilessly

through the rarefied air. But at last we reached a little plateau—a small rock-strewn mountain desert or *puna** with the narrow opening to the pass beyond. Once through the pass our way would be all down hill; we would be on the eastern slopes of the Andes, with the streams flowing to the Amazon instead of to the Pacific. And somewhere, between the snow-clad, glacier-sheathed peaks and the hot, jungle-covered lowlands, was the unknown territory referred to by the Indians as Achcacuna. Although the hardest of our travelling was over, the most difficult part of our undertaking lay ahead. We would have to go slowly, carefully. It would be necessary for us to spend days, perhaps weeks, searching for a feasible route to the unexplored area. No longer could we follow trails, no matter how faint or how bad. Beyond the pass we must leave the beaten path, the route that led southward, along the range to the little town of Yucay, a military outpost on the Rio Tigre, and must pick our way into the heart of that labyrinth of peaks, up-flung pinnacles, knife-edged ridges and tumbled mountains, that formed the supposedly impassable barrier to the unknown land we sought. Without some landmark, some bearing to guide us, our quest would have been hopeless. It would have been worse than trying to find the proverbial needle in the hay-stack. But the government aviators who had flown over one section of the district had accomplished something. They had taken aerial photographs and had made notes of the terrain they had seen, and it was upon these records that I depended for success. In each of the pictures three isolated peaks stood out prominently. But as the photographs had been taken from various positions of the planes, the peaks were visible from a different angle in each of the prints. Hence they served as cross-bearings, and by a simple method of elementary triangulation the position of the verdured valleys of the Achcacuna could be located. But first we had to locate the three peaks, and, having done so, and by their help having located the Achcacuna country, we would yet have to find a way to reach it. So, as we rested after our long, hard climb, I got out the maps, the aerial photographs, my compasses and scales, and began plotting our past route and planning the course we were to follow after we emerged from the Macapuy pass.

*Spanish-American term for a desert region.

SAUNDERSON stretched himself, yawned, lighted his pipe and glanced about at the austere, forbidding mountains gray, red and pink, with the dazzling glaciers crowning their summits. "Reminds one a bit of the Himalayas," he remarked. "Should be some sort of game here—wild goats, sheep. But—Hello, what's that?"

Seizing his glasses he focussed them on a portion of the mountain side above the pass.

"Funny, that!" he muttered as he swept the bare slopes. "I could have sworn I saw something up there. Not a bit of cover where even a rabbit could hide, and yet I can't see a bally, living thing."

"Probably a vacuña," I suggested. "They're exactly the color of those rocks. If they stood still you couldn't see them."

"Not a bit of it, old top!" declared Saunderson. "What I saw was dark colored. But it has vanished—utterly!"

Red chuckled and cocked an eye skyward to where a condor was sailing in vast circles on broad motionless wings. "Reckon you seen one of them condors," he said. "Probably was settin' up yonder, an', when he seen you was a'

lookin' at him, he got scairt an' flew off."

Saunderson grinned. "Can't spoof me that way, Red, my lad," he said. "I can jolly well tell a bird from a beast, even at that distance."

"Maybe Red's right," I observed without glancing up from my maps, "this clear, thin air distorts objects and magnifies them. I've seen a little bird that appeared as big as a deer at a distance of nearly half a mile. And a condor is a pretty big object, you know."

"Hmm, well, possibly I may have been mistaken," Saunderson admitted as he returned his glasses to their case. "And I imagine a condor perched on a rock would present something the appearance of a man—that's what I thought it was—an Indian."

"That settles it," declared Red with finality. "No Injun could never get up there. It'd take wings to climb them cliffs. An' I've seen eagles squattin' a-top the mesas* in Arizona that fooled the best of us. Yep, I recollect one time we was trailing some Apache cattle rustlers, an' along towards sundown one of us seen a Injun standin' on a mesa against the sunset. Yep, he was that plain we could see his fringed leggin's an' britch-cloth an' a feather in his hair. Sort of half-stoopin' he was, as if looking for us a-trailin' of him. But shucks! After we'd crep' up for mebbe a quarter mile of the mesa, damned if that Injun didn't just flap his wings an' fly away!"

SAUNDERSON laughed. "'Pon my word!" he ejaculated, "you're the most entertaining beggar I've ever met, Red. No matter what pops up you always have a story that fits the case. I—" At this moment Karen spoke to his master in low tones, using his native dialect.

*A high plateau or terrace, characteristic of some Western regions.

"By jove, I *was* right!" exclaimed Saunderson. "Karen says he saw it and that it was a man. You can trust him not to be mistaken!"

I reached for my glasses and studied the mountain side. "He must have been—this time," I declared, "or else the person you saw possesses the supernatural ability to vanish in air. There's isn't a place where any human being could descend there without being in plain view, and I can't see a bush, a cactus plant or even a rock where he could hide."

Red was studying the mountain through half-closed eyes. "I dunno," he said at last. "I dunno about the Injuns up here, but an Apache or a Yaqui could hide out there—yep, a whole bunch of 'em could. It looks kinda flat an' bare from here, but I bet if we was up there we'd find it all rough an' cut up with cracks an' plenty of places where a Injun could hide out. An' how do we know they ain't some draw or gulley or *quebrada** leadin' over the ridge and down 'tother side? If I was in Injun country where they was hostyles I'd mosey along mighty careful an' ready to shoot when we poke our noses into that pass."

I laughed. "There aren't any Indians living up here," I told him. "And if there were any they'd be harmless, timid, peaceful Quichuas. They are the only mountain Indians in the country. You forget that this is all well known, well travelled country, and that people—Indians and white men—llama pack trains and burros, are constantly passing through here. Why, even Don Jaime makes monthly trips through the pass to Yucay and his ranch there."

"Beggin' yo' pahdon, Chief," said Sam. "How 'bout tha bandits yo' was discussin'? Ah don't rightly know how

*A ravine.

bandits conduc' theyselfs, but Ah makin' tha suggestion."

We all laughed. "Better get that young cannon of yours ready for action!" Saunderson told him.

"Yep, load her plumb full of slugs an' keep her primed an' cocked," chimed in Red.

Sam grinned. "Ah done so, Mistah Red," he declared. "Ef Ah pulls he trigger an' he goes Bam! Ah boun' for hit somethin'."

"By Jove, I'll keep under cover when I see you draw *that* gun!" cried Saunderson. Then, as he strolled over, and thrusting hands in pockets peered down at my outspread maps! "What does 'Achcacuna' mean, old man?" he inquired.

"That depends," I told him. "It's Quichua, and in that language the exact meaning of a word depends a great deal upon how it is used and what other words are used with it. 'Cuna' is merely the plural ending—meaning literally, more than one, 'Achca' means many—a great many or a countless number."

"THAT doesn't make sense," exclaimed Saunderson. "'More than one a great many', you know!"

"Not if you interpret it that way—so literally," I said. "But it would be equivalent to 'Multitudes' or 'A great, great many'. Of course that doesn't sound sensible either. But if we knew the original Quichua name—the full name, it would probably mean something understandable. It may have been 'Chaco-achcacuna', a great multitude of forests, or something similar."

"Hmm, well, I hope it means great multitudes of game," he observed. "As a hunting expedition this has been a complete washout—so far. Not even a fox."

"Mebbe we'll run plumb into some big game into that cañon," remarked Red. "You better have your rifle handy."

As I folded up my maps and rose I glanced at Red. An involuntary exclamation of surprise almost escaped from my lips. The thongs of his holsters were tied about his legs, and the flaps were unbuckled and turned back. The two six-guns were ready for instant use!

I was on the verge of asking him why he had unlimbered his artillery, but changed my mind. Instead of speaking I moved over to my packs, rummaged in them, as if restoring my maps and papers to their places, and finding a revolver dropped it into my own pocket. After all, I thought, it might be as well to be prepared for anything. And suddenly it dawned upon me that there had been a hidden warning, a hint, in Red's advice to Saunderson to have his rifle ready. I turned. Saunderson was shoving cartridges into the magazine of his heavy express rifle, while Karen stood near, the lighter rifle in the hollow of his arm. Saunderson had grasped the meaning of Red's casual remark, and was preparing to meet "big game" in the pass.

CHAPTER II

Ambushed

IN some past geological period a prehistoric river had cut a great gash through the mountains, to form Macapuy Pass. Eating deeply into the layers of softer rock, following the lines of least resistance, the ancient stream had carved and sculptured the stone and had left columns, pillars, pinnacles and outjutting shelves of the harder strata. At the bottom of the defile was the wide bed where the torrent had flowed before some upheaval of the continent had raised the pass thousands of feet in air. But now it was an area of smooth, water-worn stones with a tiny trickle

of water, from the melting glaciers, flowing through the centre. Between this rivulet and the cañon walls, the débris that had fallen from above had decomposed to form a thin soil that supported a meagre growth of aspens and poplars, gnarled, stunted willows "dwarfed conifers," a tangle of convolvulus, and tiny park-like areas of grass, starred with orange-yellow amaryllis lilies.

Sniffing and braying at sight of the greenery and the water, the burros rushed forward despite the efforts of the *arrieros* to control them, and halting at the first patch of grass commenced browsing avidly. Even the llamas, disdainful as always, broke into a trot and began to graze. Red halted and cast a speculative glance about the place.

"Too open for a hold-up here 'bouts," he muttered. "And them critters sure are needin' fresh fodder and water. If I was you, Doc, I'd stop right here for a spell afore goin' on into the cañon. Unless them burros and llamas is fed up and watered it'll be plumb hard work handlin' 'em, with food an' water all about, an' like as not we may be needin' to hustle 'em through to beat all hell. 'Cordin' to my way of thinkin' the faster we hit it through this pass the more likely we'll be to get outen it with whole skins."

"By Jove! Do you actually surmise that we may be attacked?" exclaimed Saunderson. "I 'got you', as you Americans say, when you suggested that we might meet 'big game' in here. But 'pon my word I only half believed you actually foresaw trouble, you know."

Red bit off a man-sized chew from his plug of tobacco and slowly masticated it. "I ain't sayin' as we're headin' for trouble," he said. "But I been scoutin' an' runnin' down outlaws an' cattle-rustlers an' bandits an' sech-like hombres for so long I got the habit of kinda expectin' somethin' to happen every time I put my head into a place like this. If the Lord A'mighty had a made it special an' to order for a hold-up it couldn't have been better. An' if what you seen over on that hill was a man, an' if Doc's right an' there ain't no hostyle Injuns round these parts, then like as not the Commandante was right and there's a passel of bandits hangin' about. Even if there be, mebbe they ain't aimin' to mess up with this outfit. An' then again, mebbe they be. Still an' all, it seems to me, if I was Doc here, I'd be ready for most anything! critters fed up, watered an' rested; an' then hustle through this cañon just as fast as we can make it."

"I THINK you're right, Red," I told him. "Not that I really believe there is any danger of bandits; but just to be on the safe side. And even if for no other reason, to have the animals in good shape when we reach the other end of the pass. There'll be a lot of hard work for them soon."

So we spent the rest of the day there, camped there that night, with Red, Saunderson and myself taking turns at sentry duty, and prepared to go through the pass the next morning. Both men and beasts were much the better for the rest and change of food and water. Saunderson, unable to remain inactive for a moment, had insisted on going for a hunt, and had returned with a young deer which was the first fresh meat we had eaten in many days. He reported that he had seen no signs of any human beings near, and that Karen—who was almost superhuman in his trailing and scouting abilities—had penetrated far into the defile without finding a trace of bandits or other men. Even Red admitted that there was no real reason for his suspicions; but he didn't

relax his vigilance as we started on our way and he kept his guns tied down and ready for use at any instant.

"Mebbe they ain't nary a bandit within a hundred miles," he growled as we proceeded. "But somehow or other I got a hunch there's some deviltry hangin' about, an' I'm proceedin' just as if I was plumb sure of it."

And while Saunderson professed to scoff at the idea of danger, I noticed that he held his rifle in readiness and that Karen kept by his side carrying the other guns. But as we marched steadily on, and the pass became narrower and narrower, and the silence was broken only by the patter of the feet of llamas, burros and men, and nothing happened, we began to feel that all our fears had been groundless and our precautions uncalled for. Red and I were in the lead. Behind us came the two Indians with the llamas. Then the burros with the Cholo *arrieros,* while Saunderson and Karen formed the rear guard. We had passed the narrowest part of the gorge. Ahead of us we could see the eastern end of the pass, when suddenly, startlingly, the sharp report of a rifle rang out.

Red's battered sombrero flew from his head. With a single motion he whipped out both his revolvers, threw himself behind his mount and fired at a tiny puff of smoke that had spurted from the face of the cliff.

The detonations of his heavy forty-fives drowned the sound of a second rifle shot; but one of the Cholos, frantically striving to control the burros, spun like a top and sank to the ground.

From the rear came the heavy crash of Saunderson's express rifle, and I caught a glimpse of a man's body hurtling down the cliffside.

"Got him, by Jove!" shouted Saunderson, "Come on, you beggars!"

"Run for it!" bellowed Red, wheeling his mount and dashing back to urge the frightened Cholos forward. *"Vaya!* Beat it! *Vamoose!* No place for fightin' it out—here." he yelled to me. "Out in the open's our only chance!" By now sharp reports were echoing from every side and bullets were spattering on the rocks all about us. All was confusion. The *arrieros,* shouting, cursing, cracking their whips, strove to urge their burros into a run. The frightened creatures snorted, reared, and kicked, jostling and crowding one another. Only the presence of Saunderson and Karen yelling and waving their arms, prevented the beasts from dashing back whence they had come. But the Indians and their llamas remained calm. Placidly, unhurriedly, the Indians talked to their charges in Quichua, and the llamas —aloof, supercilious, dignified as ever —moved quickly, obediently forward, while their masters trotted behind them, never glancing to right or left, and calmly masticating the inevitable coca pellets in their cheeks. That was the last we ever saw of them.

WHY we were not all killed during those first few moments, when we were trying to get order out of chaos, will ever be a mystery to us three. But God knows it was bad enough. Burros squealed with fear and fell dead and wounded. One Cholo lay dead among the rocks and a second was writhing in his death throes. Red's face was covered with blood from a furrow cut by a bullet across his forehead. Saunderson's mount had been shot under him, and my own saddlehorn had been shattered by a rifle ball. But Saunderson seemed to be thoroughly enjoying it. With Karen beside him he stood there, loading, sighting and firing as calmly as though on the range at Bisley, one of the English rifle ranges, holding the bandits to their

cover, while Red and I fought madly to control those fiendish burros and drive them onward to the safety of the open country beyond the cañon. But we might as well have tried to drive the stunted trees or solid rocks. And when the last Cholo dropped, and the burros stampeded across the gorge, we gave up, and shouting to Saunderson and Karen to follow, we dashed towards the exit of the pass.

Before we had gone fifty yards the shots from our unseen assailants ceased.

"Beat 'em!" panted Red by my side. "Didn't think we could make it! But damn them burros."

"Oh, I say, that *was* jolly!" exclaimed Saunderson, who came striding up with Karen running at his heels, like a faithful spaniel.

Suddenly I halted. "Wait, where's Sam?" I cried. "I haven't seen him since—"

"Me neither," declared Red. "Ain't—"

"I'm positive he wasn't back there—either alive, wounded or dead," said Saunderson. "I was the last one to leave and no casualties aside from the three Cholos, I'll swear. Possibly—"

"I'm going back!" I exclaimed. "He must be there—May have been hit and dropped among the bushes or rocks. I—"

My words were cut short by the roar of a gunshot just ahead.

"Damn 'em—they've headed us off!" cried Red. "We'll have to make a dash for it—Sam or no Sam."

The next moment we rounded an outjutting spur of rock and halted in our tracks. "Sam!" I shouted. "What the devil—"

Sam looked up from where he was seated on a bounder gazing ruefully at his pistol. A grin spread across his black face.

"Ah spec' Ah put too much powder in he, an he bash up for true," he said as he rose and exhibited his ancient weapon with a burst barrel. "But jus' tha same, Chief, Ah did say true when Ah say as how when he go Bam! Ah boun' for hit somethin'. Yaas, sir, Chief, when Ah see tha' bandit snoopin' an' creepin' mongst tha rocks, Ah say, 'Sam,' Ah say, 'he goin' seek a place whereby he aimin' to shoot yo', Chief an' Mister Red an' Mister Saunderson when they comes along.' So Ah crep' up meself an' res' me pistol on rock an' shet me eyes an' arsk tha Lord fo' help an' pull he trigger. An' Bam! he goes an' bash he up." With a gesture of disgust he tossed the ruined pistol among the rocks.

"But the bandit?'' I demanded. "Where is he? Where did he go? Is he ahead there?"

Sam's jaw gaped and he rolled his eyes in surprise. "Wha la! Didn't Ah say, Chief?" he exclaimed. "He over yander behin' that big stone. Yaas, sir, Chief, he daid, he well daid!"

"WELL, I'll be damned!" ejaculated Red, who had sprung forward revolver in hand and had peered back of the rock Sam indicated. "Sam sure did hit somethin' when that there blunderbuss of his'n went 'Bam!' Must have been near enough to have shook hands—Top of his head blowed clean off!"

"My word, lucky for us Sam was here!" exclaimed Saunderson. "We would have dashed right into the trap, by Jove!"

"Yes, but how did you happen to be here?" I demanded of Sam.

He grinned sheepishly, dug his toes into the sand and hung his head. "To tell tha truf, Chief, Ah was scared," he admitted. "When Ah fin' tha bandits shootin' at we, Ah say to me feet, 'Feet, tha Lord put yo' on me legs

fo' to run, an' now feets do yo' duty.' Yaas, sir, Chief, Ah—"

The report of a rifle and the whine of a bullet reminded us that the bandits were still on hand and creeping nearer.

"Come on!" I shouted, "they'll head us off if we don't hurry like blazes!" But the bandits made no efforts to head us off in the cañon. No shot was fired as we raced on, and, dashing from the pass, came to a halt at a safe distance beyond the nearest cover. Before us stretched the stony puna, and far down the trail to Yucay a cloud of dust rose in the still air.

"Aha! Here we are!" cried Saunderson jubilantly.

Red spat. "Yeah, here we are, an' the hell of a nice fix we're in, Mister. Burros back in the cañon with our campin' outfit an' grub. Cholos dead, saddle mules gone—"

"And the llamas going full speed for Yucay," I added indicating the dust cloud in the distance. "Looks as if the Achcacuna trip must be abandoned."

Red hitched up his trousers and took another chew of tobacco. "Might as well be hoofin' it after them Injuns an' llamas," he said. "The sooner we get to Yucay the less hungry we'll be."

"Right-o!" agreed Saunderson cheerily. "Matters might be much worse, you know— Some of us shot and all that sort of thing. And we jolly well *did* bowl over some of those rotters in the cañon!"

There appeared no other course for us to follow, and turning towards the trail we trudged on.

The rocky plain or *puna*, where we had debouched from the pass, sloped steeply downward, for perhaps a thousand yards, to a rather deep gulley with a brawling mountain stream flowing over its rocky bed. To our right the rugged cliffs rose in a series of serried ridges to the peaks beyond, and with an outflung spur extending almost to the verge of the gorge. Hence, the puna, which was fully half a mile in width where we stood, was triangular in form, bordered on one side by the mountains, on the other by the river and ravine, and with its apex where gorge and mountain spur converged with the trail passing between the edges of the ravine and the rocky point.

As we reached the point, tongues of flame spurted from the rocks; from every side came the sharp reports of rifles; bullets whined past our ears like angry bees. The bandits had outwitted us. They had sneaked along the ridge from the pass, had led us to think ourselves out of danger, and had us ambushed in a veritable *cul-de-sac* between the rock-strewn hillside and the river. Only their impatience and the fact that they were execrable marksmen saved us from complete annihilation. Had they waited another two minutes we would all have been shot down. But by some seeming miracle their first volley left us unscathed. To stand there was to invite death; to attempt to dash along the trail within pistol-shot of their rifles would be suicidal. With one accord we wheeled and raced back towards the open puna, while all about us the rifle balls spatted against the rocks or flung up clouds of dust and sand about our feet. There was no cover, not a rock or boulder large enough to hide a rabbit, and the brigands had got our range and were firing more carefully. Red swung abruptly to the right. "Over the bank!" he shouted.

A MOMENT later we were crouching on the steep slope of the *quebrada* safe from the bandits' bullets.

"By Jove they are rotten marksmen!" exclaimed Saunderson.

"An' damn lucky for we all they be so," said Red.

"The question now before the house is what we are to do next," I said.

"It's obvious we can't follow the trail to Yucay. We can't retrace our way through the pass, for even if we could exist there until some other party comes along the bandits would beat us to it and would head us off. And we can't stay here indefinitely. If—" My words were cut short by the report of a rifle and a bullet ricochetted from a rock beside Sam.

With a terrified yell he leaped up, slipped and went sliding, rolling down the bank.

"After him!" cried Red. "That shot came from across the creek."

In a shower of stones, a miniature avalanche of sand and rocks, we reached the bottom of the gulley and stood knee-deep in the stream. "Now the beggars *will* pot us," declared Saunderson.

"Like hell they will," growled Red. "Look ahead, Mister."

Just beyond where we stood, the ravine bent at an acute angle, and the stream had cut deeply into the rocky walls leaving an outjutting shelf of strata affording perfect protection from above. A moment later we were standing in the recess.

"Can't touch us here," remarked Red. "And if they try to snipe us from the opposite bank they'll have to show 'emselves, an' I reckon we can shoot a dam sight quicker'n an' straighter than them skunks."

"Undoubtedly," I agreed. "But are we any better off? Might as well be shot as to stay here and be starved out. And the river may rise at any time and then—"

"Beggin' yo' pahdon, Chief," said Sam, interrupting my words, "Ah been snoopin' 'roun' tha corner an' Ah fin' we able fo' to proceed on'ard 'neath tha rocks like we is here 'bout'."

"I say, Sam's right—distinctly right!" announced Saunderson, who had hurried forward to verify Sam's report. "Like a covered gallery, you know. We can toddle on and give these beggars the slip, absolutely."

"Yeah, but we gotta come out—some place." Red reminded him. "An' like as not when we want to come out we'll find we can't. Even Karen ain't monkey enough to climb up here. And farther on it may be worse."

"Or better," I said. "Anyway, there's no sense standing here. Let's go on and see if we can't find a spot where we can get out without being shot by those devils!" Then, as a new thought struck me. "Hold on. I've a pocket map of this district. Let's have a look and see where this stream flows."

"NOT very promisin'," observed Red as we studied the map. "Looks like she come outen a mountain an' ran every which way."

"No, not much information here," I agreed. "I imagine the greater part of the map was filled in by guess. The country's never been really surveyed. The worst of it is the farther we travel up the stream the farther we'll be from any settlement. And we've got to live."

Red tightened his belt. "If it comes to starvin' or bein' shot I'll be shot every time," he declared. "An' if them coyotes would jus' come out in the open I'd take my chances shootin' it out with 'em."

"So would I," I told him. "But they won't, and there isn't much glory in being shot by a man whom you can't see and can't shoot at."

"Isn't it possible there may be fish in the jolly old brook?" suggested Saunderson.

"Yeah, an' how you goin' to catch

'em?" demanded Red. "Shoot 'em with that elephant gun of yourn?"

Saunderson chuckled. "Aha! You don't know Karen," he said. "If there are fish here he'll get them, never fear."

"Seein's believin'," growled Red.

"That can wait," I declared. "Plenty of time to try fishing when we need food more than now. The thing for us to do is to go on. We've wasted too much time here already. Those damned scoundrels aren't fools. They may know of some place where they can head us off. Then we will be in a nice fix."

"I wonder," said Saunderson, as we picked our way onward ever keeping a sharp watch on the summit of the opposite bank, "I wonder why they are so terribly keen on getting us. They've got our burros with all the outfit, so why bother getting us?"

"If you was a bandit up here in these hills you'd be dead set on gettin' us, too," drawled Red. "We got guns an' ammunition; that's reason number one. And a damned good reason at that. Outlaws without shootin' irons might as well put up their hands. An' guns without shells is about as much good as cockleburrs. An' how the hell can they get shells less'n they hold up fellers like us? Injuns an' Cholos don't pack guns or cartridges. I'll bet we're the first passel of men with guns an' ammunition that's been thisaway in six months. An' reason number two is that they figger if we get through an' report, the Commandante over to Yucay'll send a bunch of them Injun soldiers an' a airplane up here for to clean 'em out. Long as they just hold up llama trains an' Cholos an' natives the government won't bother 'em—not much. But just now the government ain't so everlastin' anxious for to have Uncle Sam an' King George askin' how come their folks ain't bein' protected down thisaway. So these coyotes, havin' horse sense enough to know dead men don't tell no tales, they're aimin' to wipe us out. Leastwise that's my way of lookin' at it."

"And mine, also." I told him.

"But, my dear man," exclaimed Saunderson, "even exterminating us won't prevent the officials learning of the state of affairs. Those Indians with our llamas will report matters."

"If they reach Yucay—perhaps," I said. "But I doubt if they escaped. Probably captured beyond the ridge where we last saw them vanish."

TALKING, discussing our future moves if we managed to elude the bandits and emerged from the gorge, we walked steadily on. The river wound in S-turns and sharp bends, and always on one side or the other the rock had been deeply undercut by the stream during floods, so that we were constantly sheltered from above.

But as the erosion was always deepest on the concave side of each bend we were forced to cross and recross the stream continually, and each time we did so we exposed ourselves to possible enemies above. Every precaution was taken at such times. First, one of us would dash quickly to the opposite shore. Then, while we watched the cliff-top on our side we would watch the summit on his side, until, one by one, all had crossed over. For this reason our progress necessarily was slow, and because of the erratic course of the river we had no idea as to how far we had traveled from our starting point. And with each mile we progressed the walls of the ravine became higher, more precipitous, and closer together, until only a narrow strip of sky showed between the outjutting ledges far above our heads.

"Looks like we was walkin' into a blind cañon," observed Red. "Less'n

they's a side cañon or stream comin' in, or we come to a low spot, we ain't got no chance of gettin' outen here, far's I can see. I—"

"Hello, a natural bridge!" exclaimed Saunderson as we turned a bend.

At the same instant the cañon echoed to the report of a rifle, and Saunderson staggered back with a sharp cry of pain.

"Got me—that time!" he growled as we ducked under cover. "Nothing much, though—just through the shoulder.

As I ripped away the clothing to examine the wound, Red crept cautiously forward and his revolver roared. "No damned use!" he declared as he reappeared. "Just wastin' good ammunition, blazin' away at that rat. He's hid up there on that stone bridge an' can pick us off an' never show hide nor hair of himself. Reckon it's good night for us, boys. Hey, where you goin?"

His last words were addressed to Karen who slipped, like a brown shadow, past him and vanished among the rocks.

Saunderson, gritting his teeth to stifle a groan as I felt for broken bones in his wounded shoulder, gave a wry grin. "Don't worry about him," he muttered. "Little beggar knows his business. Goin' after that chap who winged his Tuan—his boss."

"Might as well shoot hisself an' be done with it," declared Red. "Ain't even taken a gun along."

"Wager a fiver to a shilling he gets him," said Saunderson. "Ouch! I say, that hurts like the devil."

"SORRY, but it's necessary," I told him. "I've finished now. No bones injured and bullet went clean through. Just a bad flesh wound. In—"

An ejaculation from Sam drew our attention. "Wha la!" he exclaimed. "Tha' boy Karen, he monkey. Yaas, sir, he monkey for true. Look he there, Chief!"

Risking a shot from the hidden bandit, we peered from behind the shelter of rocks towards the great stone arch spanning the gorge. Far up the face of the cliff was Karen, like a fly on a wall. It seemed incredible that any human being could scale the rock, yet he was moving steadily and fairly rapidly upward, following a narrow seam or crevice that effectually concealed him from the bandit hidden somewhere on the top of the natural bridge. With bated breaths we watched him. That is, Red, Sam and I held our breaths; but Saunderson seemed in no way surprised.

"Nervy little beggar," he commented. "Rather have a dozen bandits after me than to have a hill Malay on my trail."

The next moment Karen wriggled behind a jutting rock and disappeared. Slowly the minutes passed. And then, clearly outlined against the sky, we saw him leap forward, the sun flashing on his upraised kris. Thin and faint to our ears came the sound of a blood-curdling scream, and the next instant a body came hurtling down through space to crash with a sickening thud among the jagged rocks at the bottom of the cañon.

"Got him, by Jove!" exclaimed Saunderson.

"I'm damned if he didn't," agreed Red.

Sam collapsed on a rock and shook his wooly head from side to side.

"Wha' la!" he muttered. "Ah don' never expectulate to see nothin' like so. No *indeed,* Chief! He not monkey like Ah say. No, sir. He devil, tha what he is, an' tha' tha truf. No, sir, ain't no mistaken' 'bout tha fac's o' tha case!"

CHAPTER III

Beneath the Andes

FIFTY yards beyond the natural bridge, the cañon swung sharply to the left, and rounding the bend, we came to the end of the gorge. Before us and on either side rose sheer rock-walls, and at the base of the cliff the river issued from a black, tunnel-like rift in the stone.

"Just like I said," observed Red as we gazed about, seeking for some spot where we might possibly escape from the place. "Blind cañon. No way of gettin' out of here. Nothin' to do but go back. Mebbe we can climb up there where Karen done so."

"Bilked, by Jove!" exclaimed Saunderson. "I say, how long do you suppose a chap could survive here, if there are fish in the river, you know? Possibly, if we could stick it out here for a time, the outlaws might get fed up and retire, don't you think?"

I shook my head. "Even if there are enough fish to supply food for us, we have no fuel for a fire," I reminded him. "And if the river should rise—if there should be a heavy rain back in the mountains— Well, there's the flood-water mark about twenty feet above your head. No, we've simply got to go back and risk the bandits—or fight it out with them."

Satisfied that there was no other course to follow, we turned to retrace our way. But too late. As we came in view of the natural arch we were greeted by a fusillade of bullets, and hastily ducked back around the corner. Yet in the momentary glimpse we had had of the bridge I had noticed something else.

Cut deeply into the stone, just over the centre of arched opening, were the folowing characters (See inscription below.)

"Did you see them?" I cried, seizing Saunderson's arm.

"Can't say that I did," he replied. "But the beggars are up atop the bally old bridge. They have us—"

"I don't mean those damned bandits," I told him. "I mean those symbols—that inscription on the stone."

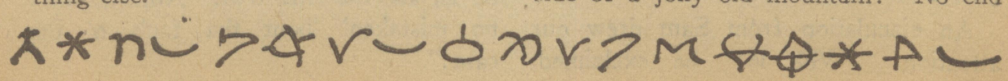
Saunderson chuckled. "My word!" he ejaculated. "Imagine, noticing a jolly old inscription with those bullets peppering us! What did it say?"

"Neither I nor anybody else knows," I replied. "It's an inscription that occurs in various places in Peru—extremely ancient. Some archaeologists consider it Phoenician, others think it Hebraic, others declare it post-Columbian. But—"

"Don't help us none, far as I can see," growled Red. "What I want to know is how the hell we're goin' to get outen here. We either got to chance gettin' killed by bullets or starve to death in here, and I'm for the bullets. If we separate an' run for it we can mebbe get under that bridge where they can't hit us and—"

"Be shot in the back on the further side," I added. "No, Red, there isn't a chance of any of us getting out alive that way. And—"

"While there is life there is hope, you know," Saunderson reminded us. "I say—I have an idea. Isn't it possible we might manage to crawl out of the bally old hole through that tunnel back there—where the river comes forth, you know? Remember that chap Haggard's story? Where they wriggled through such a place and came out, quite fit, in a strange land on the other side of a jolly old mountain? No end



of a lark, that would be, don't you think?"

"NOT much of a lark if we got caught in there by rising water or came to a hole or crevice and tumbled into it." I replied. "Still there is a chance. If the river flows out of the hole it must flow in on the further side of the mountain. Very probably the rock is honeycombed with caves and passages. But it's a chance and we can try it. How many matches have we altogether?"

"Nice place to be in if the river rose," commented Red as we crawled into the tunnel on hands and knees.

"No worse being drowned in here than out in the cañon," I replied. "In fact probably a quicker and more merciful end."

"'Where Alf the sacred river ran through caverns measureless to man,'" hummed Saunderson cheerily, quoting Coleridge's "Kubla Khan."

"Not 'down to a sunless sea,' let us hope," I said.

For the first few yards there was barely room for us to crawl on all fours; some of the time in the water, some of the time on the narrow strip of rock beside the stream. Then the roof of the cavernous hole became lower, until it became necessary to wriggle forward on our stomachs in order to proceed farther.

"Time to light a match," I announced, "and see what's ahead. No use getting into a place where we can't turn and get back if we can't go on."

Lighting a match I held it as far ahead as possible, peering into the crevice faintly illuminated by the flickering flame. But the match was almost instantly extinguished by a strong draught of air blowing towards us.

"Must be an opening ahead," I announced. "I can't see that this place becomes any larger nor can I see that it gets lower. Perhaps—"

"I say, let's send Karen on ahead," suggested Saunderson. "He's a tiny beggar and can squirm about like a snake. He can shout back the good news, you know."

"More likely bad news," muttered Red.

Acting on Saunderson's suggestion, the little Malay left us and vanished in the blackness. Minutes passed as we listened, the silence broken only by the soft tinkling of the water flowing over its rocky bed. Then from the darkness, faint and weirdly distorted, came Karen's voice speaking in his native dialect.

"Beggar says it's quite all right," announced Saunderson. "Reports that it opens out—regular cave, you know."

IT was slow, nerve-racking and difficult work, squirming through that black hole. Flat on our stomachs in the cold water, we wriggled foot at a time forward. Saunderson went first, for with his wounded shoulder we had to suit our progress to his. Following him came Red, Sam and myself. We couldn't carry the guns. It was impossible to squirm our way forward with them in our hands. So, placing them as far ahead as he could reach, Saunderson and the others would inch past them until I came abreast of the weapons. Then I would shout, the others would cease moving, and I would pass the rifles forward to Saunderson and the whole process would be repeated over and over again. But all things have an end, and at last, after what seemed hours, we crept forth into an immense cavern faintly illuminated by light striking through a crack in the mountain hundreds of feet above our heads.

I glanced about at the dripping, glis-

tening rock walls of the huge chamber. "We're inside an extinct volcano," I announced. "That light comes down through the old crater."

"And we've entered the old furnace *via* the ash-chute, by Jove!" chuckled Saunderson. "Now if we can only find where they dumped the coals in we'll pop out again by the coal hole. Oh, I say! Where's that beggar, Karen?"

"Ah 'spect he gone on ahead fo' to spy out tha road, sir," said Sam. "Ah see he prospeculatin' round' as we arrive here 'bout, sir."

"Appears to be only one exit," I said as I glanced about. "Over there where the stream enters. He must have gone that way." The water tumbled into the cave in a miniature cataract from a narrow fissure ten feet above the rough, lava floor of the cavern. But there was ample room for a man to stand upright in the orifice, and scrambling up the slope beside the little waterfall we peered into the "coal hole" an Saunderson called it. Cupping his hands, Saunderson shouted, calling Karen by name. As the echoes of his voice died away an answering cry came from far ahead, and without hesitation we hurried forward. For what seemed an interminable distance we stumbled along, splashing through the water that filled the crevice from wall to wall, feeling our way with outstretched hands. And then suddenly, unexpectedly we saw light ahead, and a moment later were again in the open air.

But the shouts of relief that rose to our lips died in our throats as we glanced about. On either side rose stupendous walls of rock, sheer precipices soaring upward in dizzy heights for thousands of feet to where a narrow strip of sky showed between their summits.

Sam dropped to a rock beside Karen who was staring upward, head cocked on one side, eyes half-closed as if calculating his chances of climbing up the unscalable ramparts that hemmed us in.

"Wha la!" Sam lamented. "We out tha fry-pan into tha skittle, Chief. 'Pear like to me we boun' for die fore we reach out. Yaas, sir, Chief, takin' tha fac's of tha case in consid'ation that what we boun' for do."

"Shut up!" I snapped. "Pick up that gun and come along. We haven't come to the end of the cañon yet."

Red spat. "Naw, but it's gettin' all-fired late for lunch. Afore we mosey on I vote we see if Karen can rustle any fish outen this here river. I'm that hungry I can eat 'em raw."

"Ain't no call for do that, Mister Red," declared Sam, suddenly brightening up at the mere mention of food and cooking. "They's drif-wood here. Look see, over yander. Ah goin' fotch he an' cotch fire, an' we all goin' eat, yaas, sir. Ain't no mistakin' 'bout that."

"Counting your fish before they're caught, Sam," I warned him. "Well, Saunderson, it's up to you and Karen whether we dine or not."

"RIGHT-O, old thing!" he chortled. "If the fish are here, little old Karen will have a mess in a jiffy."

Turning to his servant, he spoke in Malay, and Karen nodded. Wading into the water, he began placing stones across the stream to form a rough wall or dam a few inches in height. A few feet further down the rill he then built a second dam, leaving a narrow opening in the centre and placing rows of stones leading from the opening at an angle to the bank of the stream on either side. This done he stepped on to the shore, hurried to the spot where the rivulet vanished in the cliff, and leaping into the water came splashing with feet and hands up stream.

"Damned if there ain't fish here!"

exclaimed Red as we caught glimpses of flashing, silvery bodies darting ahead of the Malay. "But what the—"

The Malay had reached the lower dam he had made, and quickly dropping stones into the opening, he closed it. Stripping off his waist-cloth he spoke to Saunderson in Malay, and placing the strip of cotton on the ground filled it with pebbles and gave the cloth a deft twist.

Stepping forward, Saunderson grasped one end of the weighted cloth, and with Karen holding the other end, he crossed the stream. Lowering the cloth into the water just below the upper dam, the two men dragged it down stream toward the second miniature dam.

"Wha la!" cried Sam open-eyed as he watched. "He cotched tha fish! Yaas, sir, he cotch he plenty!"

"Well, I'll be damned!" was Red's comment as hardly able to credit our eyes we saw scores of fish flashing and struggling to escape as the two men dragged the weighted cloth nearer and nearer to the stone barrier until only a few inches separated the improvised drag from the dam. Then, having secured the ends of the cloth by means of heavy stones, Karen commenced dipping out the fish with his hands.

"Deucedly clever, don't you think?" exclaimed Saunderson as we waited while Sam, grinning from ear to ear, broiled the fish over his fire. "Not so sporting and all that sort of thing, you know. But a bit of all-right for the jolly old tummy at a time like the present."

"What I'm a wonderin'," mused Red, "is why he chased them fish up the creek 'stead of down it. Don't seem like sense to me."

Saunderson chuckled. "Aha!" he exclaimed, "that's because you are no fisherman, Red, old top. Matter of fact, fish always swim up stream when frightened. If Karen had chased the little beggars *down* the stream they would have wriggled up past him. Trick worth knowing, what?"

"Well, 'It ain't never too late to learn somethin'—good or bad,' as the preacher used to say. But I reckon 'taint likely I'll be called on for to earn my keep by catchin' fish. Hey, Sam, ain't none of them trouts ready to eat yet?"

Meagre as the meal was—for half a dozen smelt-like fish are not much for a hungry man—we felt better and more cheerful after our lunch. And even if we couldn't dine sumptuously, there was the satisfaction of knowing that we wouldn't actually starve. And aside from Red, who seemed to be obsessed with the idea of blind cañons, we felt confident that we would soon find a spot where we could clamber out of the gorge. But I admit, as we walked on, the chances didn't seem very promising. Not until we had traveled fully a mile did we come to a spot where the towering walls decreased in height. There, above our heads, a great rift cut deeply into the cliffs; a second cañon at right angles to the one we were in but with its floor fully one hundred feet above us. But I scarcely noted this, for there, on the face of the wall opposite the opening of this second defile, the strange symbols I had seen at the bridge were cut deeply into the rock.

"There's that old inscription again!" I cried.

"'Pon my word, so 'tis," agreed Saunderson. "Writing on the wall and all that!"

"Don't see as how it helps us none," said Red pessimistically. "Now if—"

"I'm not so sure about that," I declared. "It proves men have been here—up there. It proves the same men who have been there were on the natural bridge. I'm willing to wager almost anything that there is a way of

getting from one to the other. I—"

"Sure," growled Red, "ain't we jus' come that way?"

"I don't mean by the route we came," I said. "But I've a hunch that there's a direct trail up there. If—"

"'Oh, for the wings of a dove!'" quoted Saunderson. "But without such angelic appendages I fear our feet may never tread the bally old trail."

Stepping forward for a better view of the sculptured characters I made a second discovery.

"Look there!" I exclaimed, "what do you make of that?" I pointed to a tangle that appeared like trailing vines dangling from the verge of the cliff above the carved symbols.

"Dunno, vines, I reckon," said Red.

"Looks like— By Jove, I have it!" cried Saunderson. "'Pon my word, it's one of those suspension bridges these Indian beggars put across the cañons!"

"Right!" I told him. "Once upon a time it spanned this ravine. But one end has given way. That proves there must be an old road up there."

Suddenly Saunderson slapped me on the back. "I say!" he cried, "I've an idea, really! Can't we climb up by the old thing? Let Karen go first—he's a regular monkey for climbing, you know, and he's the lightest weight. If he makes it he can look to the fastenings up there, see that the ropes aren't rotten, and if it appears to be quite all right, up we'll go, one at a time, like jolly sailor-lads, you know."

"If you want to risk Karen's life, and if he's willing, I don't see why I should object," I told him. "But even if the strands support his weight they might give way under your weight or mine. That old bridge may be thousands of years old—it certainly has been there for centuries—and it is probably as rotten as punk. And if Karen gets up there and the thing breaks when we try it, how will he get down again?"

"He won't," observed Red. "He'll be stuck up there for life—less'n he can find a way outen the place. *I* ain't pinin' to be in no such fix."

"Nothing ventured, nothing gained, Red my lad!" cried Saunderson gaily.

"But we can readily eliminate the possibility of such an eventuality. Before we attempt to ascend, the little beggar can come down, you know."

"Why not test the thing by putting our weight on it?" I suggested. "If it doesn't give way Karen will be safe enough, and if it does we'll know we couldn't have climbed up anyway."

"Dunno as that's a good idea, neither," objected Red. "Mebbe them ropes ain't fastened any too good up above even if strong enough to hold us themselves. I reckon Mister Saunderson's right 'bout Karen goin' up first."

SAUNDERSON turned to the Malay and gave rapid instructions in his own language. Karen grinned, gave his waist-cloth an extra tug, shifted his kris to his back, and approaching the dangling remains of the old bridge, seized the trailing ends and drew himself a foot or two above the ground. Then, satisfied that it would bear his slight weight, he went rapidly up hand-over-hand, his bare toes against the rock aiding him in the ascent. In a few moments he drew himself up on the ledge above and shouted some unintelligible words to his master.

"Right you are, old top!" cried Saunderson, slapping me on the back. "He says there is a pathway up there—leading along the cliffside. And the ropes are all to the good and fastened through holes in the rock. Really awfully thoughtful of the old Incas—leaving their bridge hanging, dangling down-o, as jolly old Mother Goose has it, just

to help us out of here, don't you think! My turn next, you know. I'm the heavy-weight of the party. If it holds me it's safe for you others. Confound this shoulder, it's going to hurt like Hades!"

With remarkable agility for a man of his weight and size he climbed, and though he must have endured unspeakable agonies from the fresh wound in his shoulder no groan came from him, and we saw him draw himself over the ledge beside Karen.

"You're next," I told Sam.

"Wha la!" he cried, his eyes rolling wildly as he gazed upward at the sheer wall and slender ropes of twisted fiber. "Ah can' never do so, Chief. No, sir, Ah boun' fall 'fore Ah get harf way. Ah—"

"Shut up and try it!" I commanded him. "Either you go up or you stay here. Now hop to it!"

But Sam collapsed utterly at the mere thought of making the ascent.

"Reckon we'll have to haul him up," said Red. "He ain't never goin' to make it himself. You go along Doc, an' I'll hitch Sam onto one of the ropes an' you three can haul him up, I reckon."

"Not a chance of it," I told him. "I'm the last. You go ahead and I'll send Sam up to you."

"Damned if I will," he declared. "I—"

"Who's boss of this outfit?" I demanded. "I'm running this expedition, and you do as I say. Now up with you, pronto!"

"ORDERS is orders," growled Red, but I hate like pizen to leave you here. If the damn thing should bust—"

"You'd be down here with me," I reminded him with a laugh. "Go ahead, Red, the sooner you're up there the sooner we'll get Sam up."

A few moments later Sam was being hauled aloft, blindfolded at his own request, and if possible more terrified than he had been at the thought of the climb.

"Ready to haul up the guns?" I shouted when Sam's inert body had been lifted safely onto the ledge. Then, when the fire arms had been drawn up I began my own upward ascent. Hand-over-hand I went up the swinging cable that ages before had supported the Incans bridge and which had served us so providentially. I was within a few feet of my goal when a half-suppressed cry from above caused me to glance up. And sheer terror almost caused me to release my grip and fall to certain death. Between me and the ledge the cable was giving way! The strain put upon it had been too much for it. Several of the frayed strands had parted, and as I stared horror-stricken upward, hanging motionless above the abyss, another strand snapped and I felt myself drop back an inch or two. I dared not move, dared not attempt to climb farther. The least jar, the slightest motion of my body might snap the woefully small portion of the cable that remained intact. Yet to remain there motionless, waiting for the end that must come, watching with numb terror as the strands parted one by one, was torture beyond words to express; torture made even more terrible by my nearness to safety and the others above. I was almost within reach of their outstretched hands. Two feet more and I would have passed the weak spot and would have been safe beside them. The horror on the others' faces peering down at me told only too well that they, too, realized that I was doomed. There was no hope for me. No chance of aid from my friends above. Nothing to be done but to hang there waiting for the final strand to snap, waiting for the headlong plunge to an awful death. Rather

than endure such torture it would be better to release my grip and end the agony of suspense. Striving to control my voice, I called to my horrified comrades above.

"So long, Red," I shouted, "I'm going to let go—no use waiting. Good bye, Saunderson, old pal. Behave yourself, Sam, you black rascal. If you get back to—"

"Hold on, Doc!" cried Red interrupting my words. "I got a idea! You ain't cashed in your checks yet an' you ain't goin' to, neither. Hold hard, shut your eyes so there won't be no grit tumblin' into 'em, an' for God's sake don't lose your nerve."

A NEW hope rose within me at Red's words. What he had in mind I could not even guess. But there must be something, some chance, and gritting my teeth, shutting my eyes, I put all my will power into retaining my grip on the cable. My strength was ebbing fast. It seemed as if I had been hanging there for hours. My muscles felt numb, my arms seemed being dragged from their sockets. My fingers ached almost beyond endurance. Even if the rope held another minute my muscles must give way. From above came a scraping sound, bits of rock, pebbles, dirt rained down upon me. I felt myself slipping. With an almost superhuman effort I forced my tortured hands to close more tightly on the cable. I felt another strand part, felt the sickening half-inch drop. Another ten seconds and— Something brushed against me. I felt my wrists seized, gripped as if with bands of iron, and then everything went black.

I regained consciousness to find myself lying on a narrow shelf of rock.

"Ha, 'Richard is himself again!'" exclaimed Saunderson as my eyes opened.

"All's well that end's well, as the jolly old saw has it, you know."

"Wouldn't never have happened if I'd clumb up last, like I wanted," growled Red. "Feelin' all right now, Doc?"

"Quite—I guess," I replied, "I—"

"Wha la!" exclaimed Sam. "Ah ain't never been expectin' to cook food for yo' no more, Chief. Ah convince yo' boun' for be kill. But Ah arsk tha good Lord for to save me chief an' He done so. Yaas, sir, Chief, 'tha Lord He move in myster'ous ways His wonders to pafo'm.' An' He sen' Mister Red fo' save yo'. Ah—"

"Ripping of him—of Red, not the Lord, I mean!" cried Saunderson. "Made us lower him over, you know, holding him by his heels, actually! Grabbed you just as the bally old rope popped. By Jove, 'some job' as you Americans say, hauling you both up! Kept fearing Red's jolly old boots might slip off and then where would you be? 'Pon my word—"

"You mean you lowered Red over the edge of the cliff and he grabbed me and you fellows pulled us both up?" I asked.

"Hell, it didn't amount to shucks," grumbled Red, spitting into the depths of the cañon. "Wasn't nothin' else to be done. An' my feet was tied to the rocks. I couldn't have dropped."

I rose and gripped his hand. "Don't tell me it wasn't a heroic act, "I said. "I owe you my life, Red. I only hope—"

"Forget it, Doc," he interrupted. "I'd have done the same for any of us—even for Sam or Karen. An' you'd have done it for me, I reckon. I—"

Saunderson drew the kris from Karen's waist cloth and touched Red's shoulder. "With this sword I knight thee Sir Red!" he cried.

"Aw hell!" growled Red, trying to hide a grin. "Stop foolin' an' let's be driftin' along!"

END OF PART I

The Master Minds of Venus

By WILLIAM K. SONNEMANN

A distinctive feature of AMAZING STORIES *has long been the fact that it holds its authors. It is almost surprising to look back over the old issues and see how the same writers contribute to our pages. Very naturally every now and then, a new author appears and in this story we have such. Mr. Sonnemann is making his first, and we hope not his last, appearance before our readers. They will find his work is a capital interplanetary story and we promise them that they will enjoy it to its end.*

JAMES SAMUEL LEE was a likable sort of chap. He was generally gay and light hearted about his work in the office and the laboratory and was about as pleasant a co-worker to have around as his companions had ever known. If a knotty problem troubled one of them he could lend a helping hand in such a carefree and friendly manner that the superior ability he possessed in many such cases did not offend the pride of the one assisted but increased the respect of the one for the other. Underneath his genial air and easy manner, however, there existed a depth of thought and capacity for sound reasoning that had never been fully appreciated even by those who knew him best.

There was one real exception to this lack of full appreciation. She who had been Madge Perriman did not know how she knew, but, in some feminine way, she knew that in Lee was a man who would some day make his mark in the world. In fact, she was confident that he already held the crayon in his hand. His manly qualities, clear capable mind, and geniality she had found so complete a supplement to the sterling feminine qualities of her own that she could not, would not, resist his courtship. A year ago, when he was 24 and she was 21, they had married. The intervening year had increased her love and respect for him even more, while, at the same time, his increased responsibilities had so tempered his attention to his duties that his departmental manager was more than ever justified in describing him as a very capable young electrical engineer.

LEE was not exceptional among his colleagues in entertaining a dream of financial independence for the future together with well formed ideas of what he would do with his time and resources, if and when this dream was attained. Back in college days he had determined that whenever it became possible, he would have an experimental scientific laboratory of his own, wherein he could work out his ideas for pleasure and profit. Beginning as a thing merely hoped for, the laboratory dream was now a definite goal, for he had learned

She paused in the operation of starting, however, for there drifted down in front of her the most grotesque figure she had ever seen outside the theatre.

by experience, since his graduation, that it was his bent to delve into the why of things, and, having learned the unknown, to solve the problem at hand by invention. Much of his work with the Union Electric Company had been in the company's electrical laboratories in which, as the occasion arose, he had perfected several ideas and devices on which the company had obtained patents.

Now that he was married, his dreams were even more vividly desirable, and harder to attain. It was another problem to solve, of a different nature, harder than the usual run of mere technical problems, and required a different attack. A private invention of value, developed with his own time and money so that the profits therefrom would be his, had appealed to him as the solution providing the quickest and surest fullfilment of his ambitions. The idea for the invention had come, he had hammered away on it in his spare time, and definite results were almost in sight.

"Jim," said Madge, one morning at breakfast, "my father likes to play around with the radio, as you know, and I have often heard him say that if he had a 'static eliminator' he would have a million dollars. You say the interference eliminator you are working on is the same thing, so, according to father, it should be worth a lot of money. I have been wondering, though, if it will be worth as much now as it would have been a few years ago. Static does not seem to bother us as much now as it used to, and I hardly ever notice it on our radio except when we are having a thunderstorm."

"That is because we have more powerful broadcasting stations now," replied Lee. "We get the most of our radio entertainment from our powerful local stations. They bring us the chain programs as well as good programs of their own, and we don't have to explore the ether for far away stations. But when we listen to the locals, the volume control is turned down, which makes the sensitivity of the receiving set low, and because the signal strength is large compared to the strength of the static, or interference, we get good results. If you turn up the volume control, though, and bring in a distant station, you will then notice plenty of static to mar the program.

"AND then there is the commercial side of it to look at. As it is now, particularly during the summer months, a ship in the Carribean Sea, or the Gulf of Mexico, to get a message to New York must frequently require it to be relayed, sometimes two or three times. With my invention perfected, that would not be necessary. As it is now, I could build a radio receiver sensitive enough to pick up the weakest of ship stations even in the Indian Ocean, but I could never hear them because of interference. With such a receiver tuned up to its maximum sensitivity the static would itself sound like a thunderstorm, and the interference from spark plugs of cars traveling along Main Street would resemble the battle of Chateau Thierry. What I want to do is to build such a set, put my eliminator in it, see that it works, then talk business with the radio manufacturers, the telegraph companies and even the telephone company."

"How many tubes will it take to build such a set?" asked Madge. "I hope it won't take up the whole living room."

"Guess I'll have to move to the attic," laughed Jim. "As for the number of tubes, I don't know. I am going to bring home two or three new ones tonight, as well as some new i.f. transformers for my superheterodyne circuit. In another day or two we ought to know whether I have been wasting my time or not."

Madge's eyes lighted with surprise and delight.

"Jim, you don't mean it! Are you that near through?"

II

THE next few evenings were busy ones. Stage by stage additional amplification was added to the radio set, but not without difficulties. Madge assisted in every way possible within her scope, not only by lending an extra pair of hands where necessary, but also by avoiding, as far as possible all social engagements that would have occupied their evenings. The first additional stage of amplification went in very easily, and the strength of the set was considerably improved. But the next was not so easy, and the third involved some real difficulties. All sorts of howls, squeals, and whistles developed, and it took careful study on Lee's part to iron these out. Each additional stage of amplification proved to be well worth the trouble, when it was made to function correctly. The sensitivity and range of the set increased tremendously, and still no static or electrical interference of any kind was heard that could not be eliminated by simple adjustments.

When the third stage had been completed it become obvious that in order to continue the work it would be necessary to rebuild certain portions of the receiver. For example, the rectifier and filter systems for supplying plate voltage to the tubes was inadequate. The small amount of ripple in the rectified current, which a month before had given no trouble, was now amplified to such an extent that it was necessary to either further improve the filter system or else use batteries. At this point Madge was heard from.

"Jim, why go on? You have already heard Australian and South African stations. We have heard voices talking in a strange lingo which we could not identify, but which must have come from Europe or Asia, and you admit that so far it is a huge success. Why not go ahead and get your patent?"

Lee, being wrapped in thought, did not immediately answer her. He was laboring over the problem of what to do about his plate-voltage supply. To purchase a set of batteries would cost money, of course, and it would be necessary to replace them now and then. But it would also cost money to enlarge and improve his battery eliminator system. Perhaps it would be sufficient to augment the present eliminator with a set of batteries. That would not only increase the capacity, but should do much toward providing a steadier source of direct current.

Madge repeated her question.

"I suppose I should," he replied. "But I seem to have gotten a sort of fever in connection with it. I want more 'power,' more 'sensitivity,' so that, if it is possible, I can hear any station in the world, from 100 meters up, at any time of the day. How would you like to be able to say that your hubby was the first man ever to be able to listen to any radio station in the world at will?"

"All right, I guess," replied Madge. "But remember, the attic is only so big. Your radio has already grown out of its cabinet, and we have limited finances, you know."

"Suppose we do this, then," suggested Jim. "We will buy some batteries, a few incidentals that I shall need, and add three more stages of i.f. amplification. Then we will call it quits."

THIS was the course agreed upon, but it was easier said than done. Jim learned a lot of trying lessons concerning radio design when dealing with

such tremendous amplification, and at times the problem seemed insoluble. He was tempted to quit when two of the three additional stages had been added. At this point the sensitivity of the set was tremendous. He listened to experimental 10-watt airplane transmitters in use in the air over New Zealand. By his knowledge of code, he identified 10-, 15-, and 20-watt transmitters from all over the world. Really, there was no necessity for building the set up any farther, and noises inherent in the design of the tubes themselves were beginning to be troublesome, even though he used the best. But there was a faint sound, a weak voice calling—which drew him on. If it had not been that his method of increasing the sensitivity of his set had not also tremendously increased the selectivity he would never have heard the signal, for it was almost coincidental with one of the lower wave lengths used by ships. At times he perceived the faintest music of a fascinating character, but when the voice was calling or speaking he could not quite make it out. The peculiar thing about it was that, from frequent repetition, he was almost positive that he had heard his name called twice. In fact, it had sounded like—"James Lee, more power" repeated slowly, emphatically, pleadingly. One more tube and one more i.f. transformer would surely bring that out.

It was late Saturday night, and the last additional stage was almost finished. Madge had gone to bed at 11:30, exhausted by the weeks of constant effort.

The last connection was made at 2:00 o'clock. Lee turned on the current and sat down to wait for the tubes to heat, the dials being adjusted for the elusive signal. A half-minute elapsed. Some electrical interference made itself manifest. A half turn on a balancing condenser reduced that to a minimum. It was becoming harder to balance out. He had perhaps reached about the limit of usefulness of the invention. A minute elapsed. He turned down the dials and explored the 600-meter band. A number of ship stations came in, as he was wont to express it, "like a ton of bricks." Apparently the new stage was operating satisfactorily, so he turned back to the mysterious wavelength and was delighted to hear the familiar whirr of a carrier wave. Then——

"James Samuel Lee," came from the radio, "please be patient for a few minutes. I have a message for you."

This was repeated time after time with the information thrown in occasionally that it would be approximately seven minutes before the message would be ready. The voice of the speaker, a man, was strong, eager, and vibrant with hope, as though a long struggle, which he had made to achieve a definite goal, were about to be rewarded with success.

FATIGUED as he was, Jim's tired thoughts at first were only mildly cheered with the realization that his long, hard labors were over. He had won, had triumphed over many obstacles in building the most sensitive radio receiver in the world, and had finally brought in understandably the mysterious faint voice that had actually called his name. Then the disconcerting thought struck him—a thought that filled him with something of alarm and accelerated processes of reasoning. Was the secret of his invention out? What could it mean? He had told no one, and he was sure Madge had not. But why such a weak signal associated with his name? He reasoned that it would be perfectly possible for one of his friends to build a transmitter so weak that it would take the tremendous amplification of his receiver to bring it in, but, at that, it would have to be some distance away, and furthermore, none of them knew

that he had such a powerful receiver, nor that he was up at this hour. His feeling of alarm passed. It must be some other man by the same name. Well, after spending so much hard work bringing this station in, he would wait and get the message some fellow was trying so hard to get through. If it was too personal he could shut it off. Thus his thoughts filled a trifle more than the seven minutes alloted.

"Ah! There you are! Success at last!"

The speaker seemed almost beside himself with joy and exultation. His words poured forth with ill-controlled excitement.

"James Samuel Lee, Earthling superior, we are overjoyed at your success, for it is also our triumph. You are a man after our own hearts, and we claim you as our own, as this new enlightened age begins." The voice suddenly sobered. "But you do not know, and I must tell you. There are many questions in your mind, and there will be greater, more baffling questions when you hear this. But it is you, YOU, sitting there in your attic listening to your highly developed radio, with whom I wish to talk. And who am I? You do not know me now, but I hope soon to be your best friend. I am A-daven, of the planet you know as Venus. I have many——"

The radio was switched off by Lee's trembling fingers. A look of fear and bewilderment crept into his eyes. Had he worked on this radio to the extent that he had overtaxed his mind? What could this mean except an hallucination? He had worked too hard on it—overtaxed his system—he must not lose his mind—too much at stake.

HE found himself downstairs, wandering about aimlessly. His tired senses took no cognizance of his surroundings, his mind being given over to a jumble of thoughts. Venus—possible, barely possible, but so improbable—his language—his name—knowledge of his doings and whereabouts—they could not see him—it was impossible.

The disturbance wakened Madge. Sensing that he was over-tired when she could get no word out of him, and afraid of the hunted look in his eyes, she decided he must go to sleep. There was a little yellow pill in the medicine cabinet guaranteed to induce sleep promptly. The doctor had left it once when she was ill, but she had not used it. She used it now, but Jim was the dazed recipient. In a few minutes he was peacefully asleep, and, 80,000,000* miles away, a powerful radio ceased to send its carrier wave through space.

III

THE narcotic kept Lee asleep until a late hour Sunday morning, and he waked much refreshed. A substantial breakfast did much toward restoring his peace of mind, and, over their coffee cups, he told Madge the story of the events during the early morning. Feeling reassured, he wanted to dash madly for the radio and try it again, and yet he was a bit afraid. If it were true—what had happened—then it was almost "too good to be true," and if it were not, then he had a temporary mental let-down. Ordinarily self-reliant to perfection, James Lee had at last met with an occasion so amazing in nature, so stupendous, that, instead of accepting gratefully words of encouragement as they came, he now eagerly sought encouragement from the one person closest to him before proceeding farther.

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* The radius of the orbit of the planet Venus being 67,000,000 miles, and that of earth being 93,000,000 miles, it is of course possible for the two planets to be separated by an approximate distance of from 26,000,000 miles to 160,000,000 miles, the two orbits being very nearly in the same plane.

"What do you think?" he asked.

Madge was very serious.

"I know something happened, or else I would not have had to give you that medicine last night to get you to sleep. If it hadn't been for that, I would swear that you had had a very realistic dream. It sounds awfully impossible, dear, and still I know you well enough to know that your sanity is as firm as the Rock of Gibraltar. I don't know what to think, and it worries me."

There was a short interval of silence, then Madge continued:

"I'll tell you what. I'll go up and listen right now, and if he talks to me everything will be all right. If he doesn't, then you are going to take your vacation right now, and we are going off some place and take a rest and leave the radio alone for a while."

"Please hurry then, and end the suspense. The radio is tuned in for him, if he is there, for I merely turned it off last night and left it."

LEE nervously poured himself another cup of coffee, while Madge ascended the stairs to the attic. Several minutes passed, and they seemed endless. At length he heard a voice, but he could not hear what was said.

Madge appeared at the head of the stairs very much excited.

"Jim! It's a girl's voice this time. She says she is Alva-rado, from Venus, and that you are not crazy at all. Come on up! Oh, this is marvelous!"

James Samuel Lee ascended the steps two and three at a time.

"How do we know we are not both crazy?" he asked.

"If we are, then we are crazy together, and what's the difference? But I believe this girl. She said to get you up here and sit down and she would do the talking. Come on—let's see what it is all about."

Madge and Jim made themselves comfortable in front of the radio. No sooner had they done so than they began to enjoy the most beautiful and entrancing selection of music that it had ever been their pleasure to listen to. The music was so compelling in nature that they were carried away with the spirit of it.

"BOY, oh boy!" exclaimed Jim. "If I could play music like that, I could sway the multitudes!"

"But what instruments did they use?" asked Madge. "Some of the plaintive notes seemed to come from something like a cross between a bassoon, a violin, and an Hawaiian guitar, and that's the nearest I can come to identifying any of it."

"I believe that was my masterpiece," said Alva-rado. "I played that for you on the harmoniophone while I was waiting to learn that Mr. Lee had come up stairs, and for your entertainment. You see, A-daven and I are both so overjoyed that our long task of keeping up with you has finally borne fruit, that I felt like expressing my feelings in music, and you have just heard the result. I hope you liked it, and I do not believe you ever heard anything like it on earth. Except, of course, you have heard the piece, 'The Stars and Stripes Forever', and that is how I learned it, for I was reading your mind when you heard it. The harmoniophone is an all electrical instrument developed by our scientists which leaves only the time and melody at the hands of the player. The tone, corresponding to the type of instrument effect wanted, is also selected at will, but the harmonics are so proportioned that the musically perfect tone is always played. But now A-daven has come into the laboratory, and I am going to let him talk to you."

"Good morning, Mr. and Mrs. Lee,"

said A-daven. "I am sorry, Lee, that I upset you so last night. Perhaps I should have broken the news to you a little bit at a time, although that would have been hard to do. Your mental equilibrium is safe, even though I did give you a jolt, and I hope you will accept my apologies for making you uncomfortable for a while."

Jim suddenly decided that he was going to like this A-daven fellow, whoever he was, and wherever he was. And that went for Alva-rado, too. He hoped she was as pretty as her voice was pleasing.

"I was rather tired last night, too," continued A-daven, "and when you were safely asleep I caught up on some much needed rest myself. Your hours have been horrible — pardon me — while you have been working on your radio, and they have been my hours, too, for it was my duty to keep up with you to establish this contact. Now let us get down to business.

"THOUGHT is a form of vibration. On Venus, we have reached a state of mental development such that we can sense these vibrations in our own minds, and thus read your thoughts just as easily as you tune your radio to a local station. We have learned your language by studying your thoughts. Thoughts, harbored in a bright and thoroughly active mind such as yours, are easily read, while the thoughts of a moron are jumbled and hard to interpret. This is the ideal situation, of course, for we have no time to fritter away, trying to read thoughts that are not worth while. Oddly enough, or perhaps not oddly at all, depending upon your point of view, there is a difference between the male and female thoughts. It is much easier for me to read the thoughts of Jim than it is to read the thoughts of Madge, and, conversely, Alva-rado reads Madge's thoughts more easily than Jim's. For this reason my remarks will be directed chiefly to Jim, and my pretty helper will interrupt, if she thinks it desirable, as she follows Madge's reactions.

"We have followed you two in particular since we originally reported to the Executive Council that we had found that you had a possibility of getting in touch with earth through you. Previously, we had kept up with a thousand of your best minds for what benefit we Venerians might get from it all, and in the hope that we would finally discover you, or your equivalent, and thus make contact with earth. There are a dozen of us on the 'Search Detail'. The remaining ten are still keeping up with their assignments as usual.

"We have a very definite objective in wishing to communicate with you as we have been doing. We want to establish friendly relations with earth that will be mutually beneficial, and, ultimately, we expect to pay you a visit and establish commercial relations! Please do not think us vain or conceited in saying so, but our civilization is a thousand years ahead of yours in the art of peaceful living and in general mental development, but perhaps only five hundred years in scientific attainments. We could have paid you a visit two hundred years ago, but our reception would not have been very pleasant. Our forbears had no desire to be burned at the stake. We could even less afford to visit you in the immediate future, as matters stand now, for, if you learned the secrets of space travel from us, we would immediately have to spend unlimited time and resources building up a planetary defense against certain of your warlike nations with territorial ambitions and a lust for power. You may not think so, but we know, as you shall later learn. Even if this were not necessary, many other difficulties would be encountered

and also trouble, which we desire to avoid.

"One of our principal reasons for wishing to trade with you is that we want a larger variety of food than is now available on our planet. In ages past, when the race of humanity on Venus was going through its various stages of evolution, there were destructive wars and periods of unrestrained and unreasoning exploitations of and depredations on our natural resources. In the last war, two thousand years ago, folly ran riot, and the race was almost wiped out. Hate and destruction reigned supreme, and although the best minds saved themselves, their heritage was a wrecked world. It has been reclaimed in all respects save one. The use of poisons, fire, fungus, and other destructive agencies reduced our edible foods to three species. While we have developed varieties in these species by methods of selection, a tuber (which we fancy is similar to your potato) is still a tuber, whether it be variety 1 or variety 12. When we visit you, our first negotiations will be for a supply of every variety of seed which you can offer, that makes a palatable food and which is likely to grow in our humid climate. Our limited varieties get very tiresome, we can guarantee. We have found delicious foods growing as vegetation on the uninhabited planets, Mars and Mercury, but these plants do not thrive on Venus, so that these foods form the most expensive of imported delicacies.

"THERE is one other detail of the story which I must tell you before we put the problem up to you. On Venus, we believe we have attained very nearly the ultimate goal in society and government. The need for government is very slight, since our people are virtually all enlightened. We have four continents, but only one central government, the four continents forming four states, which are merely subdivisions of the body politic made necessary by geographical considerations. The officials of the government are elected by popular vote, and the winners are those who have demonstrated that they are capable of the most intelligent leadership in the interests of the whole.

"The arm of the government detailed to police duty is not nearly so large in proportion to our population as is yours. Crime does not pay dividends on Venus. The culprits are easily detected by thought-reading, and guilt is established beyond question of a doubt. When an occasional murderer develops from biological or other reasons, he is treated by electro-therapeutics acting directly upon his brain cells. This treatment does one of two things. If his make-up is such that he can be cured, the treatment cures him and makes a good citizen of him. If he can not be cured, the treatment kills him. We win either way. A slightly different treatment is used for other types of criminals and those who disrespect the rights of others, but who do not actually murder their fellow men. The electro-therapeutics these offenders receive either cures them, or else, in removing the objectionable quality from their mentality, it also removes a considerable portion of initiative and thereby reduces them to class C citizens. The class C citizenry do the manual labor of this planet which cannot be handled with machinery. Inasmuch as they are permanently reformed, even though artificially, they are treated with respect. They are adequately paid and are generally contented.

"There is no sharp line of distinction generally drawn between the two other classes of citizenry on Venus. They are class A and class B. Those with a mental activity intensity of 1,800 ergons per minute or more, together with a

mental efficiency of 86 per cent or more, fall into the class A group, provided their morality and ethics test shows postive. It is only necessary to take these tests when one desires public office, and in certain other cases. Many of our eminent scientists, astronomers, industrial leaders, and prominent citizens are without doubt class A citizens, although they have never taken the tests. We are quite democratic about our social status, you see. Mutual interests and congeniality are the determining factors when we pick our friends.

"ALVA-RADO wishes to speak a word or two. Apparently she has intercepted a thought from Madge which she deems important. Just a minute, please."

Jim turned to Madge quickly.

"Did you really ask her something? I didn't hear you say anything."

"I didn't say anything," she replied. "I *thought* something at her several minutes ago, but if I had realized she was really going to say anything about it, I would have kept still."

"Madge, my dear," came Alva-rado's voice. "I am glad you asked what you did *via* thought. The question was bound to come up sooner or later, and it is better that we answer it now and gain your confidence. No, we do not read *all* of your thoughts. We are gifted with considerable tact, and when your thoughts take a turn along personal or other lines which you consider sacred to yourself, we 'tune off'. At all times in the future you will of course be conscious of the fact that there is a possibility that one or both of us will be following the trend of your thoughts, whether we are or not, and at any time that you particularly desire privacy it will only be necessary for you to think so to us, and we will hold your request inviolate."

"Jim was tempted to tease, and he looked at Madge curiously.

"Now what could my sweet wife be thinking about that she doesn't want Alva-rado to know?" he asked, unthinkingly.

"None of your business," snapped Madge. "And besides, there are plenty of your thoughts you wouldn't want A-daven to know about, either."

Jim's expression suddenly took on a serious and thoughtful aspect, but the voice of A-daven returned to the loudspeaker and prevented further conversation.

"IN order to conclusively demonstrate to you that we of Venus enjoy an advanced state of mental attainment, I want to continue the demonstration along the same line that you have just experienced. Madge knows, without doubt, that Alva-rado read her thoughts. I shall now ask Jim to think two or three questions at me that he would like answered, and as soon as I receive them I will answer them. You must allow an interval of seven minutes for your answer,, for your thought waves will not reach me instantly. They travel with the speed of light, so that it will be about three and one-half minutes before they reach me, and another three and one-half minutes, approximately, before you receive my answer by radio.

"The major portion of your ills as a world of human beings is caused by vice, greed, selfishness, and inconsideration of the rights of others. While we could not immediately lift you, as a people, to our level, we could start you on the way and effect immediate improvement by a powerful broadcast on thought frequency F, philanthropic modulation, to last for a year or so. We cannot instruct you how to build the Verbilin machine necessary for this purpose, however, for, as I stated before, we are per-

haps five hundred years ahead of you in scientific development, and there are shorter ways to attain our ends than to spend years in teaching you our science. And, along that line, we are not so sure yet that we want to teach your people *all* we know, until we are better acquainted with you. After all, your race of humanity sprang from a different origin than ours, and we have not yet assured ourselves of complete confidence in you. However, after we have established satisfactory relations with you, we could easily bring you a Verbilin machine, and many others.

"Our space craft, by which we shall ultimately visit you, we hope, is rocket propelled, being driven by energy derived from the disintegration of matter. Our largest craft is about fifteen hundred feet long. We have numerous smaller ones, some of which our scientists and astronomers use for exploration and scientific purposes. Any of these might be driven to earth, at its present distance, in about three of your days. In fact, we have already looked in on you from a point about 10,000 miles above your surface.

"I HAVE outlined some of the benefits you would obtain from association with us. I have also stated that one of the principal things we want of you at first is seeds. In addition to this, we have room on our planet for a number of your people with minds of certain classifications, such as expert horticulturalists to help us adapt your plants to our soil and climate, just as you need some of our people. Our supply of certain minerals is short, while we have unlimited quantities of others which you could use to advantage. To sum it up, everything is in favor of the two worlds establishing friendly relations.

"I have now received your questions and I find that they are: 'How do I know that you do not intend to conquer us?'; 'How do I know you are really on the planet Venus?'; and, "What do you want me to do about it?'

"Your first question is answered by stating that you will have to take my word for it that our intentions are not so inclined. We have learned from sad experience that war and conquest are things to be avoided. If we had wanted to fight, and conquer, we would have found means to do it before now. I have stated our objectives, and since you were not giving this question very serious consideration, we will pass it without further comment.

" 'How do I know you are really on the planet Venus?' Because you are quite sure that there is no one on earth that could read your mind as I have read it, and hold this conversation with you, utilizing a radio signal that is so weak, at earth, that it takes the tremendous amplifying power of your set to bring it in.

"Your last question, 'What do you want me to do about it?', is the important one. The answer to it will perhaps stagger you. *We expect you to reform the world!* Or, at least, make such changes for the better that we shall have no fear of visiting you and receiving a friendly reception. We are a weak race in point of numbers compared to you, and we have no planetarial defenses to apply against your warlike nations when they have learned the secrets of space-travel. We must, therefore, receive a friendly reception on a less warlike earth when we come.

"EVEN eliminating the war question, the earth-civilization must be prepared to receive us. From having analyzed and determined the characteristics of a representative number of your earthmen minds, we appreciate what a furore our coming would cause, after which

the political intrigue and strife among yourselves, with favors from us as the prizes, would be amazing. This does not appeal to us. We have outgrown such things as petty strife and friction among ourselves for personal gain, and prefer to live in peaceful enjoyment of our own system wherein a man's individual merits and honest endeavors obtain for him his just reward. Inasmuch as the furore must be undergone anyway, however, we prefer to remain aloof until it is over, and earth is ready to give us a genuine welcome and exhibit an earnest desire to cooperate with us. The most effective and thorough preparation to receive us, which the earth can have, is to suffer the acute pains of realizing some of the outstanding faults of your own system and then to undergo a thorough reform. It can be done, and it must be done, from within. The tremendous mental strain your people will undergo in this reformation of certain phases of your civilization should be properly viewed as healthy 'growing-pains', for, in the end, the benefits to your people will be enormous. I have outlined some of these benefits to you by describing certain outstanding advantages of our civilization over yours. You may pattern yours after ours, with our assistance, and in the end, when we have reached the same level, we shall both progress together.

"This duty, we ask you to assume, is not so staggering a problem as you will at first think. Remember, you will have at your disposal the intellectual resources of the master minds of Venus, who will guide your steps and provide you with means sufficient to accomplish these ends. I have no doubt but what you will accept this responsibility. Your mind has been analyzed by the great Verilin Verbilin and found to be of a type that will accept an honorable challenge, and your qualifications were sufficient.

"And now I think we have conversed enough for to-day. Take your time to think this over—a day or two, or longer, if you wish—and when you are ready to talk to us again, remember that it is only necessary for you to call us *via* thought and turn on your radio. Alvarado joins me in wishing you both a pleasant 'Good afternoon'."

And that was the end of it. The voice from the radio was gone. Madge and Jim sat silently for several minutes without moving. Then Jim slowly turned to Madge and said:

"So the Venerians are hungry and they want me to reform the world so they can get some garden seed! Holy, jumping, petrified catfish! What an assignment!"

IV

LEE and his wife discussed their strange experience excitedly for several hours. In the end, their only definite conclusions were that it would be best to maintain absolute secrecy concerning these conversations for the present, and that it would also be better for them to wait a day or so before attempting to get in touch with the Venerians again, thus giving them time to get their feet on the ground.

The following Tuesday evening found them seated in front of the radio in the attic directing their thoughts toward Venus. The thrill of adventure, the surge of confidence that dispelled the last lingering doubts, and, withal, a bit of egotism, that swelled in their breasts when, in due time, the sizzle and hiss of the carrier wave announced that Venus was on the air had never been equaled in their experience.

"Good evening, my friends," said A-daven. "Do you know, this is quite as much a thrill for us as it is for you, for it is also the first time for any Vene-

rian to converse with a being of another planet. We had learned to like you before. Now, we feel that we almost love you, being companions in adventure as we are. But we haven't time for much of that.

"The public spirit is at a high pitch on Venus. Yesterday was declared a holiday in honor of our mutual accomplishments, and many celebrations were held. A committee has been formed called the 'Committee for the Promotion of Interplanetary Relations', which we shall call hereafter just 'The Committee.' Its membership comprises such notables as the President of the Planet, the Chief Engineer, and the highest recognized authorities on the subjects of psychology, mind-training and thought-reading, together with several eminent scientists in various lines. For the present, this committee's principal object is to assist you. Later, after travel between the planets is established, its scope will enlarge, and the personnel of it will probably be changed somewhat, or perhaps be added to. These gentlemen all wish to talk with you, but, for the present, that privilege belongs solely to Alva-rado and myself as a reward for our efforts.

"The plan of action proposed by the Committee contemplates, first, a course of mind training for yourself. Your mental activity now registers 250 ergons per minute, with an efficiency of about 24 per cent. While these figures are low compared to those I gave you the other day for class A Venerian citizens, they are still considerably above the average for your contemporaries of equal education, training, and age. We propose to teach you how to read the thoughts of any mentality you may come in contact with on earth, and the course of training is such that it will automatically increase these values to the neighborhood of 750 ergons per minute, with an efficiency of about 60 per cent. Greater values than these cannot be attained at present, owing to lack of superior hereditary advantages of like nature, but even so, you will be placed far beyond any Earthling. Verbilin himself will be your instructor—you should feel highly honored—and he promises that he will maintain you with a definite advantage over any other Earthling we may choose to train in the future as long as you continue to warrant our confidence.

"THE course of mind training will take about six months, if you give us as much as three of your evenings each week. At the conclusion of this period your work on earth will commence. It will consist principally in interviewing prominent men in industry, the government, colleges, and elsewhere. In these interviews you will demonstrate your superior mentality, explain how you came by it, and outline the advantages to earth of maintaining friendly relations with Venus, and thus enlist their aid in effecting the needed improvements in your social, economic, and governmental structures.

"You will encounter tremendous opposition. If we were not to adequately protect you, you would be murdered by hired killers in short order, but do not fear about that. We will provide you with a small type BCX police broadcaster, which you will keep in continuous operation once you start your work. This machine will operate to broadcast thought energy, with fear and pain modulation, on a complicated conjugate thought-wave train in such manner that any thoughts of any person concerning ways, means, or intent to do you bodily harm will immediately, once the thought is well formed, be changed to fear, and to pain in the form of a headache, in direct proportion to the extent of harm intended. Murderous thoughts will be almost fatal, and will permanently remove the offender

from the ranks of your enemies, for he shall not dare to think harmfully of you again. This machine will require a small amount of self-contained battery power for its operation, and will protect you fully within a circular area of five hundred miles radius.

"During odd moments we shall determine with you a place of rendezvous at some point on earth's surface, and during the dark of your moon a space cruiser of ours will pay you a fleeting visit. It will pause for a moment and drop, with parachutes, the BCX broadcaster and a small quantity of the metal your people call gold and esteem so highly. The gold will defray the expenses you have had in getting in touch with us and will also give you the initial, financial assistance you will need, when you start your work.

"We do not propose for you to resign your position with your employer in the immediate future. We realize that you and Madge must have food and shelter, and your employment, of course, continues to be necessary. We do, however, urgently request that you do nothing at all toward securing a patent for your invention, at present, for, if you disclosed your secret to others, there would be other such radio receivers as yours built in a short time, and we have no desire for other Earthlings to listen in on our conversations with you.

"YOU have felt that your cherished dreams of financial independence and an experimental laboratory of your own have practically attained reality with the perfection of your invention. We are asking you to temporarily postpone the steps you would take to fulfill your ambitions, and because this means quite a concession on your part, we are prepared to make attractive offers to you. When you have finished with our work, you shall have a laboratory of such supreme excellence, that you cannot even dream of it now, together with the mental ability to make the most of it; your financial position shall be adequate; and you shall be held in most enviable esteem by the majority of your fellow men. In addition to this, we contemplate a surprise reward for you that we think will please you highly.

"You have not been able to thoroughly overcome your feeling that this is 'too good to be true'; you are still slightly skeptical concerning our ability to do things I say that we can; we therefore offer to proceed with your training with only one condition. That is—that you postpone revealing your invention to your patent attorneys or to anyone else. The most that you could lose would be a six months delay. We shall lose nothing, for we know that, once your training is finished, you will be more Venerian than Earthian, but with a feeling of responsibility to your fellow man such that you will be unable to resist performing our work.

"Alva-rado will personally attend to training Madge's mind. Madge will thereby be enabled to render you better assistance, and, furthermore, we consider it only fair that she be given the same opportunity to attain as high a degree of mental superiority in a feminine way as that which you will attain in a masculine way.

"I have outlined our proposals in sufficient detail, I think. It is now up to you. Do you accept?"

The voice from the radio became silent, but the hiss of the Venerian carrier wave remained, indicating that Adaven was waiting for the most important decision recorded in the history of mankind.

"Madge," said Jim, slowly, "what else is there for me to say but 'yes'?"

"Oh, I just can't believe it!" replied Madge. "But tell them 'yes'."

V

THE manufacturing company by which Lee was employed was quite a large concern; large enough, in fact, to play an important part in the industry of the nation. The various departmental managers were men of outstanding ability, having been selected from a large and fertile field of eligibles, and the manager of the Engineering Department, in which Lee held his position, was no exception to the range of ability. In addition to being a capable and efficient manager in regard to getting the work done, S. M. Watts was particularly gifted with a deep insight into the human problems of his men, and his dealings with them were so diplomatic and kind that they justified his affectionate title of "The Grand Old Man" far more than did his mellowed age. And when "The G. O. M." stopped at one's desk and requested one to come into his private office, instead of sending his secretary, the matter to be discussed involved something with a personal touch to it, such as pay, ambition, or the progress one was making, and not the routine details of the company's business.

It was four months to a day since Lee had placed himself in the tutelage of Verilin Verbilin when "The G. O. M." personally asked him to come into his private office. Immediately after he was seated, Manager Watts started a conversation designed to put Jim thoroughly at his ease. He talked of anything and everything, and in such congenial spirit, that Jim resolved again, as he had many times before, that there was never a better manager for a man to work for. Manager Watts then suddenly came to the point.

"Lee," he said, "it is not my habit to inquire too much into the personal affairs of my men, nor to overindulge in patting them on the back. You have had your share of encouragement when you have done a job well, and your progress has been entirely satisfactory since you have been with us. Of late, however, I have noticed that your efficiency and resourcefulness have taken a marked upward trend. I debated a while about telling you this, for nothing can ruin a young man more quickly than for him to get an exalted opinion of himself, but in your case I believe I can safely make these remarks. It seems most obvious to me that you are pursuing some method of self-improvement, and it seems to be quite an effective method. There are several men, in my department, who could utilize this course of study, or whatever it is, to advantage. If it is not asking too much, I should like to have you tell me something about it."

JIM was instantly on the alert, and carefully measured his words in replying.

"Yes," he said, "I have been devoting a considerable portion of my spare time to self-improvement. I am glad that you have been able to notice some favorable results, for I am not yet through with my course of study. Unfortunately, I am not at liberty to discuss the details of this course at present. Suppose I call upon you again when I have finished?"

"Very well. I trust I have not overstepped my prerogative?"

"No, sir. Not at all."

VI

SHORTLY after Jim's conference with his manager he and Madge made a rather unusual Saturday night trip. They drove for hours with apparently no more objective than passing their time away until, at an hour well past midnight, they arrived at a deserted farmhouse about twenty-five miles

from the city, and several miles from any well-traveled highway. They walked around the house, passed a dilapidated barn, strolled through a scraggly orchard and came out into a section of an old field, which was well screened from the country road over which they had come. From a package he carried, Jim produced three powerful flashlights and set them up, pointing skyward, at the vertices of an imaginary triangle of about thirty feet on a side. It was apparent that he had been here before, for the spaces in which he set them up had been well cleared of the weeds and tall grass that had taken possession of the field. There was also a cleared space where he and Madge could sit in comfort.

"Are you sure the Venerians know the right place?" asked Madge.

"Certain of it," replied Jim. "A-daven told me last week that Amoor, the commander of space cruiser number six, had looked at this spot through his powerful telescopes from an elevation of about one thousand miles, and he described it so accurately that I am sure he knows the right place."

They sat down and looked at the stars in the western sky.

"Aren't the stars beautiful to-night!" exclaimed Madge. "And just think, the Venerians can get out there in space and cruise around among the stars. Oh, how I would love to do that! I would love to see the other side of the moon, and go to Venus."

"They don't actually cruise around among the stars, Madge. Verbilin told me they had not left the solar system yet, because they had not yet solved the secret of being able to go faster than light, although he thought they might soon. But it is funny that they won't promise us anything about taking us on a trip to Venus. And they aren't going to alight to-night, either, to even say hello to us. It looks like they would, for *us*, but they won't. It was the decision of the Committee to stay off the earth in so far as possible until my work is done."

"What time is it?" asked Madge.

"Two-twenty-five. They are due here in five minutes. Look! What's that? It's—it's the cruiser!"

FAR off in the western sky a small patch of luminosity appeared that gradually grew larger and larger. They watched it excitedly as it came nearer, growing ever larger though never very bright. At length it appeared that the light was caused by the discharge of the forward rockets of the cruiser, used, apparently, for deceleration. The patch of light diminished as the need for deceleration was lessened, and then, finally, the cruiser was above them, stationary, and barely discernible in the sky against the stars. Jim guessed that it had come to rest about five hundred feet above them, and on that basis he estimated that it was about one hundred and fifty feet long by about forty feet in diameter. Lights, obviously dimmed, shone through several circular windows a little less than half-way up the sides of the ship and along the axis. The diffused rays from Lee's powerful flashlights dimly lighted a portion of the ship. The faint illumination was insufficient to allow his first impression of the cruiser to do it justice, but he was struck with the beauty of its trim shape, the suggestion of smooth flowing space conquering power in its rockets, and the silvery finish of its outer hull.

Jim's speedy survey of what he could see of the cruiser was interrupted by the sound of a metallic door being closed, and he caught sight of a rapidly descending light which slowed up materially after having fallen half way to the ground. A light wind drifted it

into the rays from one of his flashlights and it was seen to be a case or package suspended from a small parachute. The package struck the ground within a few feet of him, the light still shining and betraying its whereabouts. When he turned his eyes to the sky, the cruiser was rapidly disappearing in a patch of light far above. Only the slightest of noises had betrayed the operation of the propelling rockets.

There was nothing to do but examine the package and take it home. It had been provided with a shock absorbing understructure to cushion its fall. They opened a light wooden crate by the light of their flashlights, and found the two things they had been promised. One was a block of shining yellow gold weighing about three pounds, which Jim quickly estimated to be worth about one thousand dollars. The other package, wrapped in a tough grade of paper, was undoubtedly the type BCX broadcaster. It would be better to unpack it and set it up at home, they decided, so Jim lifted it off of the understructure. Immediately after he had done so the latter began a vertical ascent, very much to their surprise.

"That thing must have been equipped with some sort of anti-gravity substance," said Jim. "I can see now that the whole package was too heavy for the parachute alone. If I had known that, it would not have gotten away so easily. That explains the maneuverability of that cruiser, too."

They unpacked the BCX broadcaster in the attic of their home, where it would not be seen and arouse curiosity. It was found to be a black shiny box, about ten inches on each side, with only two external appurtenances. One of these was a metallic rod about five inches long, and the other was obviously the lever for an electrical switch of the tumbler type. Jim operated the switch and noted that the metallic rod immediately exhibited a slight corona of a faint pinkish hue.

"JUST try getting angry at me now," he said, smiling, as he looked at the glow surrounding the miniature antenna.

"I know better than to do that," laughed Madge.

"I think I had better find some way to try it out to-morrow, though," continued Jim, after a moment's thought. "It is better to be sure it survived the parachute drop without damage, than to find out too late that it doesn't operate properly."

Sunday afternoon Jim observed that his next door neighbor was having considerable difficulty in completing a repair on his automobile, and that he was rapidly getting out of humor about it. Now would be a good time to test out the BCX, he thought. He made a trip to the attic and assured himself that it was turned on, then returned downstairs and sauntered up to within a few feet of his neighbor.

"Sa-ay," he drawled, "if you had the sense God gave little billy goats you would have had that repaired an hour ago. You remind me of a lunatic." He did not care very much for this neighbor, anyway, so the comments were not far from the way he felt about it, at that.

The victim of this broadside turned about and faced Jim squarely.

"Why, you——" he began, and suddenly stopped.

It was quite evident that the man had been suddenly stricken with a racking pain as well as with fear to a high degree. He backed away, holding his head in both hands, uncertain as to what to do.

Jim returned to his house and by close observation of the activities next door concluded that the effects of the jolt the

neighbor had received must have lasted about thirty minutes.

VII

IN due time Jim finished his course of training under the tutelage of Verbilin. He successfully read the minds of numerous prominent men of America as designated by Verbilin and reported his findings to his instructor, who had read them simultaneously. He had also practiced on the minds of some of his co-workers with sometimes amusing and sometimes startling results, and decided to refrain from practicing his newly acquired art on his friends except when necessary. It developed, however, that neither he nor Madge were able to read the minds of any class A Venerian, because of the superior mentality of the latter, although they could do very well at reading the minds of class B Venerians, particularly when the subjects were willing. Along this line, it was interesting to them to learn that a Venerian just over the dividing line between class B and class A could do fairly well at reading the mind of the most highly developed class A citizen. This, it appeared, was one of the principal reasons for establishing the dividing line at the values previously given.) As a final detail, Jim had taken the mentality tests at the mind of Verbilin and it was found that the original estimate of improvement given him by A-daven had been quite acurate. Madge, with more time at her disposal, had taken her tests the week previously and had passed them with flying colors.

It was at the conclusion of the final test that the inevitable question was brought up. The Committee had assembled, with Verbilin acting as spokesman.

"You will recall," he said, "that we have outlined a little job we wished you to do for us. You have completed the course of training we promised you in the hope that you would accede to our requests, and you are in a better position now to determine what you should do about it, than you were originally. Unknowingly, your world awaits your decision, and, quite knowingly, of course, we also wait. What is your answer?"

"Gentlemen," thought Jim in reply, "there is quite a bit that I would like to say, but you have placed me in such a position that it is difficult for me to say it. You have made me, potentially, a powerful figure on my planet, gifted with mental strength and efficiency such as no other Earthling has ever reached, yet, in your presence, I feel dwarfed and childish. You have, figuratively speaking, given me but a taste of an excellent meal, and I am as hungry as a bear. There is only one answer to your question. With your help, the world I know is shortly going to be bumped, pushed, and forced into such reforms as it has never before known."

Several minutes later he heard a chorus of good humored chuckles, and then the voice of Verbilin.

"VERY well thought, James. Let us now get down to details."

The plan of action worked out by the Committee was outlined and discussed at some length. It was anticipated that many important details would work themselves out through the natural reactions of a surprised people, and others would have to be worked out as they went along. Jim found himself quite anxious to get started, and he had decided to start with none other than S. M. Watts.

Manager Watts was quite pleased to grant him a conference. When informed that it was to be a long story, he cleared his desk of the few papers that were on it, lighted his pipe, and sat back to listen.

"Well?"

"Six months ago I perfected an invention using my own time and money," began Jim. "It has nothing to do with the work which I do for the Company, and you will grant that the work I have done on it has not interfered with my Company duties, particularly since you saw fit to give me a few words of praise a couple of months ago. I understand that the Company policy under such circumstances is not to interfere with the individual marketing his invention to his own advantage. Is that right?"

"It is. The policy was adopted in the spirit of endeavoring to be fair, but we always trust the individual's loyalty to the Company to give us a fair chance to obtain the invention, if we are interested, at a price which is fair in comparison to the bids of others. We are proud of the fact that, so far, our trust has not been misplaced."

"It will not be misplaced with me," replied Jim. "However, I do not expect to disclose sufficient information concerning this invention to enable others to build it until the time is fully ripe."

Jim then proceeded to convince Watts that, given a static or interference eliminator, a radio receiver of such tremendous sensitivity as to stagger the imagination could be built. He then proceeded to give a resumé of the mental reactions Watts had experienced during the discussion.

"I DO not know just what you are trying to put over on me, young man," said Watts, slightly out of patience. "I do not believe it possible for you to read my mind, but you have certainly been accurate in judging my reactions. Your course of study must have laid heavy emphasis on psychology."

"On the contrary, it laid heavy emphasis on the art of mind-reading. I am sorry if I irritate you, but it is necessary to put my story across. In order to conclusively demonstrate to you that I am reading your mind, I am going to ask you to think of an incident in your life which you are positive no one else on earth knows about. When I have repeated it to you, you will know that I read your mind, and that I am not using psychological guesswork."

The demonstration was carried out successfully, and left the manager in a more tractable frame of mind.

"Just how your powerful radio and your mind reading capacity tie together, I do not understand."

"It was necessary to make the mind reading demonstration first, in order to get you in a sufficiently receptive frame of mind to accept the amazing fact I am now about to bring out. The tremendous sensitivity of my radio enabled me to get in touch with a race of people so highly developed in their civilization that we are infants in comparison with them. They have followed us for years by reading our minds and they followed me in particular as I developed my invention. These people are on the planet, Venus."

There was a long period of silence, during which the manager gazed at Lee intently. At length he broke the silence.

"If I did not positively know that you have one of the most exceptional young minds I have ever found, I would swear that you had suddenly gone crazy. Mind reading and insanity, however, are incompatible. If I may see this remarkable radio of yours and hear a Venerian speak, I shall believe your story."

"You may see it and hear it, after which I intend to disassemble it, in order to keep it out of the hands of spies who might be after it, once the story is known."

"Then how will you maintain contact with the Venerians?"

"Through two class B Venerian citizens, Iden and Muse. I shall read their minds at regular intervals to determine if there is a message for me from the Committee, or A-daven, or Verbilin, or others."

"What are you talking about? What Committee?"

JIM then related the whole story, and what he expected to do as his obligation to the Venerians and the people of earth. Following this, the two went to Jim's home, where A-daven and various members of the Venus Committee spoke to Watts through the radio. When they had finished, Jim had gained his first loyal adherent in the fight that was to come.

"How may I help you?" asked Watts.

First, by granting me an indefinite leave of absence from the office. Secondly, by assisting me in getting interviews to begin with, where they will count the most. You are well known in this city as a public spirited citizen and, until I am better known, an introduction from you will go a long way toward getting me a friendly reception."

"I think I may help you both ways," replied Watts. "However, you will grant that the nature of the whole thing is so stupendous, that any normal human being will be temporarily dazzled. Let me ask you to give me the remainder of the day and to-night to think this over, and to-morrow morning we shall go into it again at the office. I may be able to help you more than you think."

Early the following morning Watts called Jim into his office. When the day was finished they had added another recruit to the cause in the person of the president of the Union Electric Company. Watts had arranged an early appointment with him, and the three had put in a busy day in discussion and demonstration. At five o'clock, Jim was on the company's payroll as a consulting engineer with no fixed hours, thus leaving him free to pursue his course as he saw fit for the next few months, and providing him with a very substantial means of support independent of the Venerians. An agreement was worked out in a friendly spirit whereby the patent rights to his invention, when the patent was obtained, were to be transferred to the company for a consideration involving a modest fortune in cash, as well as a reasonable royalty on all radio sales involving the patent. Furthermore, Watts, at his own request, was granted permission to use as much of his time as possible to cooperate with Jim, who was to begin his work at once.

VIII

HAD any of Lee's friends been detailed to watch and follow him during the next two weeks they would have been at a loss to explain his actions. He would have been found visiting in turn at the City Hall, the Courthouse, the County Jail, and the slum section of town. In these tours, he would have been noticed silently studying the faces (apparently) of certain individuals he observed. Later on, he would have been found sitting quietly at home with his eyes closed, seemingly dozing, but actually reading the minds of many men in turn. At length he called Watts on the phone and asked him to arrange a conference between themselves, the District Attorney, and the editors of the two daily papers. This was arranged, with some difficulty, to take place in the office of the District Attorney, A. D. Wilkins.

On the morning of the date set for the conference Watts called for Jim in his car. While they were driving to Wilkin's office they discussed certain

phases of the subject that had been previously slighted.

"You understand that I am as much behind this thing as ever," began Watts. "But I have had more time to think of it, and one or two questions bother me. For example! you say the Venerians do not wish to spend time and energy building up a planetarial defense against some of our warlike nations, yet it seemed a simple matter for them to furnish you with a BCX. Why could they not build a BCX on a larger scale modified to make it protect their planet instead of you?"

"There is a method of protecting oneself against the BCX," replied Jim. "I do not propose to reveal this secret, of course, but it will undoubtedly be discovered in time. It is hoped that no Earthling will discover the method while I am engaged in my work."

"And if they do?"

"The Search Detail on Venus has been enlarged. My enemies will be quickly spotted and watched. I shall be warned of danger in time to escape."

"What is to keep your house from being raided in your absence, and the BCX destroyed?"

"It is not there. I thought of that, and decided to hide it in a secluded spot several miles from the city."

"THAT'S good. Your plans seem to be very well thought out, and, along that line, let me say that in picking Wilkins' office as the point from which to obtain your first publicity you have used good judgment. Wilkins is one of those rare public officials who is above graft and corruption. He will welcome any assistance you choose to give him in detecting criminals, and that is the sure way to win him to your side. If I do not miss my guess, you will find him a powerful ally."

A peculiar smile played about the corners of Jim's mouth and eyes, but he said nothing. He had learned more about Wilkins in the last two weeks than Watts had learned in a lifelong friendship.

Editors Brandt and Steel of the *News* and *Herald,* respectively, and A. D. Wilkins were busy men with little time to spare for a mysterious subject about which they knew nothing. In view of this fact, Jim decided to get to the point at once.

"Gentlemen," he began as soon as possible after the introductions, "a great deal of my story I am going to leave out to-day. I have good reasons for it, for I want a certain amount of mystery to shroud my activities, thus to serve as a drawing card to the lecture I expect to give. This lecture will be given in the near future, at which time the whole world will be told the whole story by means of the front pages of your newspapers. To-day I mean to tell you of one of my qualifications for doing the things I expect to do and to make demonstrations, and for the present, you shall have to wonder how I came by these qualifications.

"I AM a mind reader par excellence. I intend to use my ability to work a great deal of good in the world, such as in detecting criminals and in showing up corrupt public officials. Carrying it further, the world is to be forcibly pushed into a more enlightened state, after first painfully realizing its present shortcomings. In to-day's demonstration I shall assist Mr. Wilkins in running down a few criminals who have eluded justice, and that is the reason why Mr. Wilkins' office was selected for this conference. These are broad statements, and you need proof of my ability."

"Mr. Wilkins, you are thinking 'what manner of young fool is this'?; Mr.

Brandt, you are thinking 'the boy is scatter-brained'; Mr. Steele, you are thinking 'where did Watts pick this up, and why did he bring it here?'; Mr. Watts needs no demonstration, having previously had his, but he is thinking that perhaps I am a bit impetuous in my beginning. Perhaps I am, but I am endeavoring to save time by giving you a large dose as a starter. Now the thoughts of the first three of you are too jumbled to read. I can't put in words thoughts that are not thought in words, which should be obvious to you. I shall ask you each to think of something as far removed from the present conversation as possible and I shall tell you what you thought."

This demonstration was successful, of course, but it so aroused the interest of the three new men being introduced to Jim's newly acquired art that they called for more. At the end of ten minutes they were all thoroughly convinced that he could read their thoughts as easily as if they had spoken them. Jim then directed his conversation particularly to Wilkins.

"You want to know who murdered O'Banion of the police force about a month ago. You have in the county jail on a minor felony charge a man you know as a gangster, but without sufficient proof to convict him for any of his crimes. He is known as 'One Thumb Lefty.' If you will bring him here and give him some merciless questioning, we shall soon have a confession from him, for he murdered O'Banion, and I know it from having read what little mind he has."

The District Attorney looked dubious.

"We have already questioned him concerning the case and found him as unyielding as granite. I do not mind giving a suspect a hard grilling when I am reasonably certain he is guilty, or has knowledge concerning the case, but I am opposed to any third degree methods involving physical violence. I think the latter method would be the only one that could be used to get a confession from One Thumb."

"I am not suggesting physical violence, for I am also opposed to that. However, consider for a moment how much better you could question him if you already knew what the answers would be to all of your questions."

Wilkins thought this over for a moment.

"All right, tell me the answers, and then we shall send for him."

IN thirty minutes Wilkins was fully prepared, for he knew as much about the case as One Thumb and his confederates had thought about it in the last two weeks, and he telephoned the sheriff to bring the suspect to his office. The prisoner arrived in a short while and Wilkins immediately began his questioning, after first informing the prisoner that anything he said would be used against him.

"Through some unexpected good fortune on our part." began Wilkins, "we have learned *all* about the murder of O'Banion. My reason for calling you here this morning is to get you to sign a confession. You know, I believe, that if you plead guilty the maximum you can get is a life sentence. If we have to convict you on a plea of not guilty, you may get the chair. They have just stepped up the voltage on the chair lately, and I wouldn't doubt but what it is pretty hot. What is your choice?"

"You are all bluff," retorted the prisoner. "You don't know nuthin' about the case. I could tell that the last time you had me on the pan."

"A lot of water has run under the bridge since I questioned you last. A certain individual has given us much information. If you want to think that

one of your henchmen has turned State's Evidence we wouldn't for the world deprive you of the pleasure of figuring out who it might be. But let us review some of the things we know.

"There were six bullets in O'Banion's body. The only reason there were not more than that is because on the seventh bullet the machine gun jammed. Those spit-fire' shells did you that way once before. Did you change over to 'hot-shots' yet, as you planned?"

One Thumb began to get slightly uncomfortable and decided to keep his mouth shut.

"Don't want to answer, eh? Well, we know you did. You threw your stock of 'spit-fires' in the river. We shall have a diver get them for us to use as evidence. Also, before the day is over, we shall known where your machine gun arsenal is.

"Another thing. It wasn't such a good idea to get yourself in jail on a minor felony charge, was it? You can see now that it did not make you safe from questioning concerning the O'Banion case, and things are generally going to pot while you are away. It isn't so easy to run your gang while you are in jail.

"Let's get back to the murder. You thought O'Banion and yourself were the only ones that knew that you tried to buy him off, didn't you? You offered him two grand for protection. When he refused, you threatened his family. He then called you all the filthy names in his vocabulary, and he had a pretty large vocabulary in that respect. That had as much to do with your killing him as anything else. Rather cowardly, wasn't it? The honorable way to have settled that grievance would have been with your fists, not with artillery.

"Still don't want to talk, eh? Well, let's go on. You killed O'Banion at 3 A. M. when the streets were all but deserted. However, 'Izzy the Wop,' who was driving, noticed a skulking figure in an alley, as you drove away, who might have noticed the shooting. For this reason, the two of you kept yourselves right quiet in your arsenal for a week until you felt a bit safer.

"IT was O'Hara, of the police force, who told you it might be a good idea to get yourself in jail for a while. You didn't know, did you, that he as well as a couple of others had shifted themselves to the payroll of your rival gangster? It really doesn't matter, for he will be dealt with shortly, as well as the eight others who are still on your payroll.

"All of this is merely minor details. Where you made your biggest mistake was in telling your girl friend, Alice, all about it. Women sometimes weaken under pressure more easily than men, you know."

The prisoner's eyes began to light with something of hate, anger and fear, yet he still kept quiet.

"Not willing to sign up yet? Well, let's let you think it over for a few minutes while we wait on an important telephone call."

The minutes began to drag in silence. Some of the men present picked up magazines to peruse when the time got heavy on their hands, and the suspect concentrated on looking at his feet. In this position he did not notice the departure of Jim.

The telephone rang, and the assemblage came to life.

Wilkins hung up the receiver and looked intently at One Thumb.

"Our firearms experts can show that the bullets found in O'Banion's body came from the 868-A machine gun. And Alice can testify——"

"Stop!" interrupted One Thumb. "A dame, a lousy miserable dame, and after all I have done for that skirt, too! I don't want to hear any more about her. She's my gal, but she'll pay for this. Get your steno and we'll fix this confession, and while we're doing it, we're a gonna fix a couple of double crossers, too!"

Jim returned to the room while the confession was being written and kept very quiet until it was signed and witnessed. When this was done, he signalled Wilkins to remind him of the final detail. He was then introduced to One Thumb, as being the principal investigator in the case.

"How did you get my girl and the others to talk?" snarled the prisoner.

"I didn't," returned Jim. "Don't worry about your friends having double crossed you, for they did not. I know all about this case from having read your mind. It is a pretty simple mind, and I did not have much trouble. Your confession simply makes things a little easier for us, and will help us to convict your friends. In other words, I have tricked you, and your friends will consider you the double crosser!"

ONE THUMB glanced at the District Attorney for confirmation.

"His statements are very true," said Wilkins. "He can read the mind of any living man."

One Thumb turned to Jim with rising anger.

"The last man that tricked me——" he began, but got no farther. His hands flew to his head, he screamed an agonizing wail, and fell to the floor, where he lay almost paralyzed with pain and fear. It was evident to Jim that the man had entertained murderous thoughts, else the reaction would not have been so great. In an instant almost the man was reduced to a state where he could only twitch, moan, and stare with eyes that almost bulged from their sockets.

"What's this? What's this?" exploded Wilkins. "What did you do to him? I didn't give you leave to kill him, my man!"

"He will not die. Better call an ambulance and take him to the prisoners' ward of the hospital. He will be O. K. in a few hours. When he is gone, I shall explain."

When the gangster had been removed, Lee explained one more detail of his story very briefly. He announced the existence of the BCX and told how it functioned to protect him, and added, that where he got the BCX was his business until he delivered his lecture.

"You said a while ago," remarked Brandt, "that you were opposed to third degree methods, and yet you deliberately let loose a bolt of lightning in that man's cranium. It seems to me that you are a bit inconsistent."

"I regretted to have to do what I did to this man," replied Jim, "but it was a necessary detail in working out my plan. That was the second man I have deliberately caused to suffer from the BCX. There shall be no more that I shall deliberately cause to run foul of it. With due publicity for this case, the world shall soon know that it does not pay to think harmfully of me, and to do so will be at one's own risk. This man was morally due for just such a punishment, when you consider the suffering he has caused others, and so I chose to let him be the horrible example."

There followed a short conference in which Lee gave Wilkins a number of valuable leads concerning several criminal cases that had been hard to solve. He named individuals who knew the details of these cases, as well as the guilty ones themselves, and the District Attorney recognized among them certain ones who would yield their information

when pressed. He told how certain crimes had been planned and carried out, named the motives, and verified certain suspicions that Wilkins had entertained but had been unable to prove. With these correct and valuable leads, the latter, being a capable prosecutor, was confident that he could complete his cases by the usual methods. It was agreed, however, that if Lee's services were necessary and his time available he would freely give both. The newspaper men then joined in a discussion of his program for the immediate future.

IX

THE first publicity created only a a mild stir. The city was pleased to be rid of a gangster and was highly curious concerning the mind reader that had appeared in its midst. This curiosity insured a good audience at the coming lecture. All sorts of jocular remarks were passed between friends, such as:

"There is no use in your going to the lecture Thursday night. They tell me he can't read through concrete."

"Oh, yeah? Well, if you go, you ought to be safe from headaches, with that boiler plate skull of yours."

Wilkins had arranged for Jim to use the City Hall Auditorium, and the appointed night found it packed. There were men and women from all walks of life in the audience. There were those who were fearful lest the young man's activities might upset their particular graft, those that were merely curious to see him read minds, young couples that had passed up a show in the hope of more novel entertainment, and others who believed that Lee might possibly be able to work a great deal of good in the world's civilization, as had been hinted at by the newspapers. Among these latter people were a number of thinking men and women, the backbone of any community, and who had been approached by Watts or Wilkins.

The lecture was preceded by introductory remarks by both of the latter men. They used their good influences and reputation to support Lee and to put the crowd in a receptive frame of mind, and told them to expect what they thought would be too much. They explained in detail the happenings in Wilkins' office and stressed a warning concerning the BCX, after which the principal speaker was introduced.

Jim began by calling for any volunteers who wished a demonstration of his mind reading powers. Watts and Wilkins had both testified concerning this ability, but he felt there might be skeptics in the audience, and these he wished to convince. A dozen people volunteered and had their doubts demolished. He then told his complete story, except that he omitted all details concerning his interference eliminator, and, as far as possible any reference to it. He explained that by means of a particular invention he had been able to perfect a radio receiving set of such undreamed of sensitivity that he had been able to receive radio signals from a highly developed race of people on the planet "Venus." He told of his conversations with Adaven and Alva-rado, who had been patiently waiting to get in touch with him. He spent an hour explaining in detail the marvelous accomplishments of the Venerian civilization, and driving home with force the advantages of applying the Venerian methods toward improveing earth's social, economic, and political organization. It was well that he had taken a course in public speaking when he was in college, for it enabled him to paint a picture of a veritable two-world paradise to those who accepted his statements as true. He explained the terms of the Venerians which earth must

meet ere they would bring the full advantages of their civilization to benefit the earth, and he explained what the Venerians expected to get from dealing with earth's inhabitants.

"How would you like to see this worked out?" he asked.

FOR a moment the crowd was silent, then some skeptic yelled, "A pretty fairy story!" This broke the ice, so to speak, and bedlam ensued. There were those who, if they did not wholly believe the story, at least wanted to believe it, and they resented this criticism. Others were unconvinced and felt that this was their opportunity to heckle the speaker. There were cries of "Take him to the bug-house!" "Does he think we are crazy, too?" balanced by other cries of "Hurrah for the Venerians!" "What's the fare to Venus?" "Are there any good looking girls up there?" and so on.

The furor was suddenly interrupted by the sound of a pistol shot followed by screams from the back of the hall. Those who were closest had observed a man, standing among a crowd of late comers that had been unable to secure seats, suddenly produce a pistol and fire it. It had apparently been his intention to fire it at the speaker, but midway in his motion he had been seized with a form of paralysis and had discharged the pistol toward the floor. In doing so, he had shot a man through the leg, and the two of them now lay on the floor, the one injured and the other suffering the penalty from the BCX. It later developed that the would-be assassin was a member of the gang of One Thumb Lefty and was attempting to avenge his boss, hoping to make good his escape during the commotion.

When the victims were properly removed and order was restored, Jim carried on in a particularly grim and determined manner.

"This incident, this murderous opposition, makes me more than ever determined to do the Venerian's work. More than half of his audience is in sympathy with me. The remainder are just going to have to like it, as will all others who wish to oppose me. The man who attempted to shoot me ran afoul of the ever vigilant BCX, so you see that it is impossible to do me violence. Now let us get down to a little practical demonstration of the value of the Venerian methods.

"COUNTY AUDITOR CHARLEY JONES is in the audience. I see him sitting about half way back in the middle section. Mr. Jones, the county recently paved a one mile stretch of the Martindale Road and the bills for the necessary material were approved and paid through your office. Would you mind telling this audience just why you paid the bills for enough material to have paved this one mile stretch two feet thick?"

The crowd was taken by surprise and was instantly on the alert. All eyes turned toward the section of the auditorium where Jim had indicated that the County Auditor was sitting. There was nothing for him to do but make some kind of reply, and he rose to his feet.

"Are you insinuating that there are corrupt practices in my office?"

"I am not insinuating anything?" retorted Jim. "I am telling this crowd. You are just one of the corrupt public officials I am going to have thrown out of office. Now what about the pavement?"

"Why, you young whipper-snapper—" began Jones, but he did not finish. His headache was not so violent as those of the two gangsters, but it was far worse than that experienced by the neighbor Jim had tantalized when he wished a test of the BCX. Jones had started in a

rage—the rage finished in a splitting headache. He asked to be taken to the emergency hospital.

Jim had begun his speech in an easy going, persuasive, and entertaining tone. The time for that had passed now. He was after results—results that would determine his lecture was a success or a failure. His oratory waxed hot; he was rapidly assuming the eloquence of the well-known political spell binders; but his sincerity was perfect and pervaded his manner and words with telling effect. Perhaps the guardian angels of Venus lent silver to his tongue, or perhaps it was the knowledge that his unseen, unheard audience numbered a hundred thousand Venerians or more, all of them eagerly, enthusiastically, following his progress.

"THIS audience will appreciate the fact," he continued vigorously, "that the remarks I made to Jones were sufficient to incite his anger whether he was guilty or not and thus caused him to be stricken with the neatest little protective device the Venerians ever made. His guilt is not proved by his headache, but I *know* that he is guilty. Not only in that one case I mentioned, but also in many others. You did not know, but does it please you to know now, that while his salary is only four thousand dollars a year, his actual income from county funds is close to fifty thousand dollars a year? Do you want this proved? Of course you do! I have discussed this with Mr. Wilkins, our capable District Attorney, and have learned that a petition signed by as many as half of this audience and backed by influential men of this community will insure a private audit of all county books, and will expose rascality and corruption to its vilest depths. I am getting the influential men lined up, and I want your support. May I have your support?"

The roar of applause that greeted him assured him that he had it. He continued, an air of relief and a comfortable feeling of power lending new weight to his words.

"Very well, then. The battle is on, and there is to be no quarter. Let us take another case, more putrid than the first. The City Treasurer looks a bit nervous over there. Would the audience like me to explain his nervousness?"

There was another roar of applause.

"I'm for more and better headaches!" called a voice from somewhere in the tumultous sea of faces.

"Mr. Treasurer," continued Jim, "would you like to explain the false entry amounting to $52,833.50, which is made in Ledger No. 3, Page 42, as well as a number of other things I can think of as soon as you get that explained?"

"Perhaps I don't wish to be carried to the hospital."

"Oh! Then perhaps you would be courteous to the accountants who will conduct a private audit of your books, as soon as I can have it legally arranged, with the support of this audience?"

"No, I won't, for I won't be there. I am resigning next week because of my health."

The audience seized upon this with glee. It was quite evident that the man had been caught red-handed, and his excuse for his resignation was much too thin.

At this point a burly gentleman, who was thoroughly in sympathy with all he had heard, noticed a well known man in the public employ attempt to make an escape through a side door.

"O-ho!" he called, in a commanding stentorian voice. "They are trying to sneak out on us, the crooks! Guard the doors, and let no one out!"

There was a rush of self-appointed guards to every exit.

This action was the turning point wherein an assemblage of people, met to hear a lecture, was converted into a meeting of indignant yet enthusiastic taxpayers. The burly gentleman had never taken a part in any public movement, yet he had unknowingly had for a long time the capacity to do so. His action had been spontaneous and had surprised even himself; the response to his request had further surprised him, and, in addition, it had aroused him to exert the leadership that was inherently his. He advanced to the speaker's rostrum and announced himself as temporary chairman. Jim read his mind as he advanced and was quite pleased by his intentions.

WHEN the meeting broke up, much work was on foot. A citizen's committee had been organized to investigate corruption in the city and county governments, following leads established by Lee. Another committee was organized for the sole purpose of furthering in any way possible Lee's work of promoting the adoption of Venerian methods. They foresaw the organization of similar groups in other cities, and therefore adopted the name "Local No. 1, Preparatory Work of Venerians Committees." This latter committee later became national in scope, changed its name to "The Thinkers," and elected S. M. Watts as the permanent Director of Activities, A. D. Wilkins olso being selected for an important post in the organization. "The Thinkers" operated as a powerful political party, but with a membership that was fraternal in nature.

The various news agencies scattered the news of the meeting far and wide. The newspapers of Jim's home city of Fittsburgh were friendly in their reports while the opinions of other newspapers in other cities varied. About half of them adopted the policy of awaiting further developments and waiting to be shown, while the remainder became antagonistic or sarcastic, although all of them printed the news reports verbatim as they came over the wires. Certain antagonistic newspapers immediately came out with editorials intended to discredit the movement, but which actually helped it by arousing the public interest.

Most of the world mocked or laughed at first. But it read quite seriously the news on succeeding days which recorded the start of the headache pestilence. It was starting in Fittsburgh, where the Committee investigating corruption in public office was getting quite active. Many public officials were unable to report to their offices because of their health, and vigorous news-hounds soon found the nature of their ailments. Furthermore, A. D. Wilkins had filled the city and county jails with apprehended criminals, and he made no effort to conceal the great assistance that James Samuel Lee had lent him. Many of these prisoners had violent headaches, for at first they would not believe in the power of the BCX, or else, ever active, it would catch them at an unguarded moment when their thoughts turned to hate.

JIM delivered another lecture in a neighboring city to an audience that overflowed a football stadium. The results were much the same as in Fittsburgh. Two committees were organized as before, and the headache pestilence bloomed out in full force. This lecture was broadcast on the radio, and the newspapers went into a furore. The exposé of official corruption and graft would not have been so startling in itself, but this, coupled with the infallibly accurate mind-reading, the terrible headaches, and the unrelenting insistence that the people of another planet were re-

sponsible for it all convinced everyone that most unusual events were transpiring. No type was too large for the first page headlines. Secondary headlines announced the beginning of headaches in other cities, mostly among gangsters and corrupt politicians. When the whole truth was known later, it was found that not a few bankers and officials of concerns handling money in trust should have been included among the ailing, inasmuch as Lee's threat of clearing out all forms of graft and corruption had applied to them.

The iron was hot, and Jim struck his big blow. He publicly announced a list of Federal Government officials whom he expected to have thrown out of office, and told the public why. These men were to be found in all branches of the government where it was in any way possible for graft or disregard for the public trust to exist. At this point many newspapers curtailed their activities in the editorial line, and adopted the policy of printing the news without comment. The thing was getting serious, when these charges were brazenly made against Federal officials, and they had no wish to become involved in libel suits. But the public interest was hot; local leaders arose from everywhere, and the average American citizen was anxious to see the whole development through to the end, whatever it might be. The fast growing organization, "The Thinkers," grew by leaps and bounds and established local subdivisions in all states.

At this point Jim decided to cease his public activities for a short while. The ball was rolling now, and he had the promise of S. M. Watts, Director of Activities of "The Thinkers," that, as soon as the national organization could be perfected, investigation would be started in those branches of the Federal Government, where he had indicated corruption. There might be no constitutional provision for a body of citizens to make such an investigation, but with men of the character that Watts was assembling in his organization, and with a goodly half of the American public behind the movement, he was sure that he could make things mighty uncomfortable for his opponents. With this work under way, and with an ace card up his sleeve yet to be played, Jim felt that a week or so of relaxation together with a number of undisturbed conferences with his Venerian friends might not be amiss.

X

THE first few days of the vacation were thoroughly enjoyed by Jim and Madge. They danced, played bridge, went to parties in their honor, and twice enjoyed picnic lunches by themselves in far-away places. One hour twice a day was set aside for conferences with Venerians, and one hour was occasionally given to the reporters. On the night of the fifth day they watched with pleasure the display of an electrical storm. The storm came out of the north, and they watched it from a point of vantage, commenting on the brilliance of the various strokes of lightning, and estimating their distance. One particular stroke surpassed them all. It seemed to come from the illimitable reaches of the heavens; it was forked and jagged beyond description; it blazed in all its glory for one short instant, and struck the earth on the horizon. The thunder rolled and crashed for several seconds ere speech was possible.

Madge shivered.

"Jim, let's go in. I didn't like that one."

"All right, Honey."

There was something wrong with Jim's peace of mind. He had spent many evenings getting Madge over her

fear of lightning and up to the point where she could enjoy a good thunder and lightning storm with him. Ordinarily he would have reassured her after that one spectacular flash, but to-night he did not. This seemed to confirm Madge's foreboding.

"Jim," she said, tentatively.

"Well?"

"That lightning flash worries me. I don't know why exactly, but don't you think that hit the ground somewhere near—near—oh, Jim, I just CAN'T have anything happen to you!" She began to cry a little on his shoulder.

"Never mind, Margy, dear. We will drive out there the first thing in the morning just to make sure."

Jim was far from being comfortable himself, and he did a poor job of reassuring Madge. They spent a miserable night.

The morning paper hit the screen door with a thud. In a very few seconds it was in Jim's hands, and he was scanning it eagerly. There was considerable space devoted to the damage done by the storm, and the activities of "The Thinkers" still held space on the front page. But the customary headline concerning the new headache patients was absent. Instead, there was the very ominous headline that a new crop of criminal suspects arrested late in the evening had reviled J. S. Lee to the limits of their vocabularies with no ill effects. Jim and Madge froze as they read.

THE telephone rang and electrified them into action.

"Don't answer it!" shouted Jim. "Are you going with me, or do you want me to drop you at your mother's?"

"I am going with you, Jim."

Two minutes later, scantily dressed, they were in their car and on the street. Five minutes later they passed over the city limits on their way north. A speed cop overtook them at sixty-five miles per hour, but, upon recognizing the occupants, dropped behind. Fortunately for him, he chose a different route back to town, for no sooner had he disappeared down a winding road than a heavy monster of steel and energy roared down the route taken by Jim and Madge, certain of the catch.

"Jim, do we have to hurry so? We almost upset on that last turn."

"I am afraid we ought to keep going," replied Jim. "Not that it will do a great deal of good, but still, I'm not anxious to stop."

He stole an apprehensive glance at the rear view mirror. Madge saw him, and looked behind.

"Oh-h!"

"This car is doing all it can do," said Jim. The accelerator is on the floor boards. It seems to me they aren't ready to catch us yet, for with that car they could easily do it on this pavement. We stand a bare chance of losing them when we turn off on that country road, and there is just one other chance where you can help."

"What is it, quick?"

"I am too busy driving to do much thinking, but you can think. Well, then, think, and think hard to Alvarado, and in the calling manner she taught you. Tell her we are in trouble. I don't know what they can do about it, but tell them, anyway."

A few minutes later they passed the crest of a wooded hill at top speed. Instantly, Jim applied the brakes, and by careful handling he managed to slow the car to a speed at which he could make the right angle turn into the country road that led by the deserted farmhouse. It was slippery and muddy, but he drove over it with a frenzied skill and judgement, that allowed him to make the highest possible speed

without sliding off of the road or turning around. The big car raced by on the pavement, but with screeching brakes. They gained a half mile in this maneouver, but now it was obvious that the big car was trying to overtake them. Slowly, surely, the distance between them was lessening.

"If we can only reach the farmhouse," sighed Madge.

"And if the BCX has only been turned off by some wandering tramp, or by being upset by a rat," returned Jim, through gritted teeth.

They passed what had been the farmhouse. It was now a mass of smouldering ruins.

"THE lightning!" cried Madge, then her blue eyes turned to steel. "What are you going to do now?"

"I am going to stop, as soon as you pass me that automatic in the side pocket."

Madge fished it out and examined it.

"Oh, my God, it's EMPTY!"

There was an ominous rattle from behind, and the whistle of bullets. Another rattle, and both rear tires blew out. They were not going fast enough on the muddy road to turn over, but the stopping was none the less difficult with two bad wheels. The big car came alongside just as Jim took possession of the empty automatic and leveled it at his enemies.

Four ugly faces leered at them. The two in the back seat each manned a machine gun, while the leader, beside the driver, carried only a .38 automatic.

"So!" exclaimed the leader, "you have a gat of your own, have you? Well, why don't you shoot?"

"I hate to shed human blood unnecessarily," replied Jim, tensely.

"Yer lyin'," replied the leader. "Either you ain't got the nerve to shoot, or your gat don't work, or you would've shot by now. But let me tell you, if you do turn loose that pop gun, we won't be content with just riddling you. We'll take you apart, piece by piece."

Satisfied by now that Jim either could not or would not shoot, the leader experienced a desire to toy with them, as a cat plays with a mouse.

"So you're the bozo who put my pals in the hoosegow, are you! A nice time you wuz having while it lasted, wasn't it? With One Thumb and Buddy Pal and all the rest a rotting in jail. Going to clean up the world, huh?—Ha! ha! ha!—I just loves reformers, gr-r-r, yeah, like a dog loves fleas."

He paused a moment and surveyed the countryside.

"What a nice little place to have a murder. So nice and quiet out here, with no one to hear the nice new machine guns we polished up special for you, when we found out this morning the headaches wuz over. When I say the word, we're going to start, but I just hate to start so soon on a reformer. I like to make 'em suffer first. Why, you——!"

Jim had stood all he could. He flung the empty automatic at the leader full force, and was rewarded by a shot which passed through his right shoulder and disabled him. Madge feverishly began to administer aid to Jim, when the leader continued.

"It's no use, sister. Yer both gonna be out like a light in a minute. All ready, boys?"

"Just a minute, boss," came from one of the gunners. "This shooting close range in a place like this kind of cramps my style, 'specially when we got lots of time. How about settin' up on the tripod about fifty feet down the road?"

"O. K., Spike. Anything to please. A winged bird can't fly anyway."

A MOMENT later the two machine guns were set up. Madge trembled, and her lips sought Jim's. It was impossible for the two of them to escape, even if they could both run, and Jim could not. He was too weak from his wound. With his last defense, and empty automatic, of no use, he could only die game.

"The Venerians shall make them pay dearly for this," he muttered.

The leader gave the order, and the machine guns rattled. They continued to fire until the ammunition was exhausted.

Jim felt the limp form of Madge drop to his lap, and opened his eyes. How he could, being dead, riddled by machine guns, he did not know, but he could see Madge lying there on his lap. Then he realized that he was not dead, and that Madge bore no visible wound. She had fainted. He turned his glance in quick surprise to the gunners and saw them paralyzed, their machine guns pointed on a downward slant to the mud in front and to the right of the car. Another quick glance showed the bandit leader barely able to writhe in agony in the mud, and the driver of the enemy car slumped over the wheel. The expression of pain, agony, and fear frozen on their faces was anything but pleasant, and its cause was unmistakable. Somewhere, somehow, the Venerians had set another BCX in operation in the nick of time.

It was no easy matter for Jim to revive Madge from her faint, considering his own condition. Weak as he was from pain, shock, and loss of blood, it required a tremendous effort on his part to drag himself from the car and obtain a little water from the ditch by the side of the road with which to wet his handkerchief and bathe her face. It was five minutes before he had revived her and said that they were safe.

They spent a minute or two in joyful reunion, for it was as though they had been returned from the dead. Then Madge ousted the incapacitated driver from the bandits' car, tenderly assisted Jim to a seat beside her, took the wheel, and prepared to make a race for the nearest doctor. She paused in the operation of starting, however, for there drifted down in front of her the most grotesque figure she had ever seen outside of the theatre. She might have screamed at the suddenness and the appearance of this peculiarly dressed man suspended from a tiny parachute had it not been that in one hand he carried the second BCX she had ever seen.

The figure had obviously piloted himself down from above by means of a small rocket-tube he carried in the other hand, thus directing his weight-neutralized landing very easily. He slipped the rocket tube into a pocket as he advanced toward them. Speech was out of the question, as he still wore over his head a metal helmet similar to those used by deep sea divers. The helmet was provided with windows for vision, and tubes led from it to an oxygen supply secured to his back like a hiker's pack. The garment the man wore was thick and heavy, and fitted poorly. It appeared to be purposely made large enough to accommodate a number of other packs he carried underneath it about his chest and shoulders. One of these could be nothing less than weight neutralizing material, for the man walked as though he weighed no more than five pounds.

UPON reaching the car the man handed the BCX to Madge, who was standing along the car and set about freeing himself of his helmet. In a short interval the helmet was removed, and disclosed the handsome face of a bronzed, blue-eyed, light-haired Ven-

erian of about twenty-five years of age.

"I am A-daven," said the man. "We shall talk in a few minutes when I have ministered to Jim. I have a first-aid pack here, as soon as I can get to it."

A-daven busied himself with removing his space garment in order to procure the first aid kit.

"A-daven, we don't know how to thank you," began Madge.

"Don't try, my sister Madge, for it is we Venerians that should apologize for getting you into this, rather than for you to thank us for getting you out. But please do not disturb me until I have doctored Jim. I can see he needs attention, and our Venerian medicines are potent enough to help him wonderfully."

Jim took the cue from the abbreviated lecture to Madge and did not speak. He watched A-daven with interest, as the man carefully and competently rendered first aid. His appearance justified the opinion he had held of him, and he felt that here was a man he should like to call his brother. Perhaps he could, for had not A-daven addressed Madge as his sister?

A-daven quickly washed and dressed Jim's wound, administering antiseptic, and examining his shoulder for broken bones. He found one, as evidenced by the expression of physical pain on Jim's face. His last operation was to administer a hypodermic with the most peculiar hypodermic apparatus Jim had ever seen. Fully a pint and a half of some fluid was injected into his veins, and, as the last drop entered, he began to feel very much better.

"What was that?" he asked.

"A little of everything," smiled A-daven. "You have lost blood enough to make you weak. This fluid will replace it temporarily, and stimulate your bodily processes for producing more blood. There was also an element for the alleviation of pain, and another stimulant, which will cause that broken bone to heal within a few days. We shall have a short while to talk, but you will have to hurry to a hospital and get the bone set before it starts to knit. I am not prepared to set it here."

Jim sat up.

"I FEEL fine now," he announced. "A-daven, you certainly did get us out of a tight place, and just in time, too. Where in the world did you come from?"

"You noticed my space suit, did you not? I dropped out of a space cruiser up in the stratosphere and floated down. As you know, I had to get the BCX outside of the metallic hull of the cruiser for it to be effective. We were on our way here with several, to be hidden in various spots in this part of the country just to guard against any such mishap as occurred last night, when the lightning destroyed your first one. We have been 'burning space', so to speak, on our way here since you first got uneasy last night. We never knew before how fast we could travel," he laughed. "We would have been here when you asked Madge to think hard to Alva-rado if it had not been that, in our haste, we shaved your moon a bit too close and were seriously deflected by its gravitational field."

Jim leaned slightly out of the car and looked upward.

"Where is the cruiser now?" he asked.

"Is Alva-rado aboard it?" put in Madge, excitedly.

A-daven laughed again.

"It was executing a beautiful parabolic curve at five thousand miles per hour when I left it, and I am not sure where it is now. Amoor was to finish checking its mad flight, then return to Fittsburgh, where he will cruise low

over the city, announce the morning events through loud speakers, and endeavor to get a police escort for these hoodlums here, as well as an ambulance for yourself. Just a minute, while I see how he is making out."

A-daven closed his eyes for a moment in order to better concentrate.

"They are on their way now," he said. "Wilkins, the Chief of Police, the 'hoodlum wagon', and an ambulance, with the cruiser leading the way above them. And Madge, Alva-rado is aboard the cruiser. Perhaps she will get the opportunity to wave to you when they stop to pick me up."

"Oh, but I want to talk with her."

"Sorry, but you can't. We have the other BCX's to plant, after which we shall be on our way, for we have work to do. You would not have had this visit from me before the agreed time, as it was, except that it was necessary for me to jump out of the ship to your rescue."

"Don't you think you Venerians are a little bit mean to us, after our trying so hard to do your work?"

Madge bit her lip with regret as she noticed the hurt expression that was at once apparent on A-daven's face.

"Madge, Alva-rado and I want to visit with you and Jim just as much as you do with us, but we can not until the work is done. You shall see why, then. Then, too, a thing you want greatly is enjoyed much more fully if one has to wait for it, don't you see? Alva-rado and I are waiting patiently; can't you?"

"I'm sorry, A-daven," replied Madge. "I'll try hard. And don't you dare forget that Jim and I are to be your first hosts on earth."

"I wouldn't for anything forget that."

"A-daven," broke in Jim, "you are more than just one of the original members of the Search Detail. I strongly suspect you are an engineer, or a scientist. I suppose we shall learn that, too, when we get on visiting terms?"

"You shall learn all about the two of us then, as well as many other things."

"You see it is this way, Madge," said Jim, with a chuckle. "A-daven, and Alva-rado, and the cruiser, and Venus are all just nice, big, red sticks of candy and you and I are a couple of kids. When we get the dishes washed and the floor swept and the beds made, then we get a bite of candy, see?"

They laughed over this, then A-daven added:

"But Jim, don't overlook the fact that we are doing our chores, too, so that we may have a bite, and we don't get ours any sooner than you do."

A LONG, silvery, cigar-shaped space craft slid into view from the rear and came to rest not more than twenty feet above them. At the same time, they heard the exhaust of approaching motor cars.

"One word before I go," said A-daven, quickly. "The new BCX Madge has in her lap is self-protecting. That is, it will protect itself from damage from human hands the same as it protects the two of you. You may leave it in perfect safety at your home, or take it with you wherever you go. That would be wise if you go beyond the five hundred mile range of the other three we are going to conceal in this vicinity. And now I must take my leave. Good luck!"

A-daven had retrieved his helmet and pack as he talked, hanging these from his belt. He now turned his rocket tube toward the ground and manipulated a switch. A faint streak of white light betrayed its operation as he soared aloft and disappeared into the space cruiser through an open door in the bottom. The door closed, and the cruiser advanced slowly a length ahead, turned

broadside, and came to rest. It was only then, with the rays of the rising sun illuminating its glistening sides that they saw the full beauty of it. It was the color of polished silver, and so perfectly assembled and fitted that there appeared not to be a rivet nor a seam in it. They noted the rows of ports they had seen the night the first BCX had been delivered, and through some of these they glimpsed luxurious living quarters in the middle section of the ship, telescopes and other scientific instruments in the forward part, and intricate machinery in the rear. At each end of the ship a dozen rocket tubes protruded in line with the axis. These were obviously for accelerating and decelerating the cruiser on its set course. Other much smaller and shorter rocket tubes were symmetrically located about various parts of the hull. These, they learned later, were used to rotate the ship, or to change its course. Built into the under side of the hull at that point where it began to curve up toward the nose was a sort of gondola where there sat, glassed in, a bearded man midst an array of instruments and control equpipment. This man was Amoor.

THEIR survey of the ship was interrupted by the opening of two ports in the middle section. A-daven appeared at one, and a girl at the other. They were too far away to get a comprehensive picture of the girl's features, and yet there could be no doubt that she was beautiful. Her golden curly hair caught and reflected the warmest of the rays of the morning sun—a nugget of pure golden softness in the background of harder, brighter silver. A gently tapered hand shielded her eyes from the direct rays of the sun, yet it seemed that even in the shadow the sparkling blue of her eyes reached them and conveyed a friendly greeting. The very shape of her finely moulded nose and chin, together with the soft white of her face and throat, radiated the healthy glow of clean, wholesome youth.

"Hello!" she called, and the voice was unmistakably Alva-rado's. "I wish we could stop. Be good, and good luck to you!"

The cruiser moved away at ever increasing velocity and finally vanished almost directly overhead.

XI

EVENTS followed in rapid succession. Jim emerged from the hospital, recovered, to face a Congressional Probing Committee. The forces of opposition were behind it, and threatened to throw him into jail. "The Thinkers" retaliated by authorizing a Committee to investigate the probing Committee. With about half the voting public aligned with "The Thinkers", either in sympathy or in membership, the elected office-holders began to slow their activities and resorted to speech-making, very much as in a political campaign. "It's unconstitutional!" they shouted. "We'll make it constitutional!" was shouted back. "They want to turn us over—government and all—tied hand and foot, to the Venerians," they cried. "A good idea," was the retort. "It would be novel to be governed by people of intelligence for a while." And so the battle raged. Those timid newspapers that had refrained from taking sides were forced to do so now, or lose their circulation, and the editorial brains of the nation grappled. "The Thinkers" proposed to put in the field in the next elections a list of candidates that had been passed on regarding their honesty, mentality, and courage by Lee, or by such Venerian assistants as he might require. These candidates would receive series K of electro-therapeutic treatment

as soon as it could be properly arranged.

"That is one-man government!" the opposition cried.

"Yes, temporarily, it is," it was agreed. "But what a government!"

When the battle was at its peak, Jim played his ace of trumps. He arranged for a nation-wide radio hook-up, together with short-wave broadcast to foreign lands, and delivered a brief speech that disturbed not only the United States but the world.

For years the world had argued about disarmament and the outlawry of war. There were treaties and treaties, with and without reservations, and agreements between various groups of nations on every side. Nations left out of one agreement were included in the next agreement to the exclusion of another, until it was virtually impossible for any mere citizen to know where his nation stood. But every one thought that war was a thing of the past.

LEE told the world that, unless steps were taken to prevent it, war was not a thing of the past. He had learned from the Venerians that a certain powerful nation planned to make war on the United States the following year, and, if successful in the conquest, would ultimately rule the world. He revealed the locations of numerous secret stores of ammunition, cleverly concealed, and also revealed that an immense navy, presumably obsolete and rotting at the docks under disarmament agreements, had been secretly reconditioned, improved, and placed in such fighting shape as to make it the most formidable navy the world had ever known. The designs of their airplanes were so correct in all details that hundreds of them had been built and stored away without flight-tests, thus not betraying their existence, yet sure to fly efficiently and well, and to spread destruction with a new and deadly gas more powerful than had been known ever before. Thousands of cylinders of this gas, in liquid form, had been stored, anchored under water a few miles from the Pacific shores of America. The exact latitude and longitude of the three principal stores were given. At the conclusion of the recitation of the horrible details, the proposition was put before the United States. With one space cruiser, now hovering near the moon, the Venerians could stop it all. What would be the answer of the people of the United States?

The belligerent nation answered the radio address in no uncertain terms by starting its onlsaught just one year ahead of schedule. The cat was out of the bag anyway, and it was now or never. A United States destroyer in the Pacific waters sent to investigate the stores of poison gas found the first, but was torpedoed and sunk by a belligerent submarine while exploring for the second. Intelligence agents two days later informed the government that a vast fighting fleet had left a foreign shore bound for the Pacific coast of the United States. The United States fleet, then small and inefficient, hastened from the Atlantic coast to the entrance of the Panama Canal, to find it impassable, hopelessly damaged by aerial bombs dropped from a squadron of airplanes that had appeared from an unknown base and then disappeared. The belligerent navy captured Hawaii and steamed on. This was the beginning of a real war, treaties to the contrary notwithstanding.

The last cablegram that came through from Hawaii, before the cables were cut, told of the terrible orgy of killing there. The small detachment of the United States fleet then present at Honolulu had been sunk, fighting gamely, and all aircraft had gone down in flames. Then, as the Islands were taken, all Americans

were slaughtered or imprisoned as fast as they could be captured, but not without their taking their toll of the enemy.

The enemy fleet steamed on. When half way between Hawaii and the California coast three fast super-bombers left the fleet, seemingly able to remain aloft indefinitely, one heading for Los Angeles, one for San Francisco, and one for Seattle. They dropped three bombs over each of these cities, and their entire populations died in a choking, strangling, searing gas.

AMERICA was enraged. There were but a negligible few who thought otherwise than of fighting the demons to the last man. They might take America, but it would not be theirs undisputedly until the last American was dead. The army increased in size to two million men in two days' time. Hundreds of thousands of men, loosely drilled and self-organized into groups, were on their way to California, many of them with only a handful of reserve officers for leaders. There was no time to wait on Washington for orders or for training.

Only a relatively few miles separated the enemy fleet from its objective when James Lee called on the President of the United States. Uninvited, yet he could remain away no lonegr. Uncounted thousands of reams of telegrams had flooded his home, all of them vowing a determination to fight to the last man, yet urging him, pleading with him, to obtain Venerian assistance in the bitter struggle, and he had wired the President that he was coming.

The Cabinet members were seated around a conference table with the President when Lee arrived, their faces drawn and haggard from intense activity, worry, and loss of sleep.

"You did not send for me, but I am here," said Jim. "You heard my announcement over the radio about stopping these bloodthirsty demons. I have come for an answer."

"It would appear to me that it will take more than a mere headache to stop these devils," said the Secretary of the Navy, wearily.

"That is because you have never experienced, nor saw experienced, a murderous headache," replied Jim. "The Venerians do not propose to stop it with headaches, however. They have other and still more effective means."

The President, too, had had his thousands of telegrams. He drew himself to his feet on aching muscles, strained to the limit by sleepless hours and the tax on his nervous system imposed during the last several days.

"Mr. Lee," he said, "up to this time I have not been thoroughly in sympathy with your activities because I believed the results you promised were too idealistic to be realized by any means in our day and age, and I was not thoroughly convinced that the Venerian race existed. Matters have come to a pass whereby my own personal beliefs or disbeliefs can not be allowed to stand in the way of any possible help our country may receive in what promises to be a war of extinction.

"In desperation, I do now believe in your Venerians.

"You undoubtedly know the will of this country as well as I do. It will fight the enemies to the last man, and it has never asked for quarter from any country. We plan to continue to fight, but if your Venerian friends can stop the war we shall be forever indebted to them. I say this in the interest of conserving the blood of our people, and, possibly, the identity of our country."

Then, turning to the assembled men of the Cabinet:

"Do you agree?"

The answer soon came.

THERE was a chorus of "Ayes".

"Very well," said Jim. "I shall relay the information, not to *my* friends, as you said, but to *our* friends. Verilin Verbilin, of whom you have heard, is aboard the first warlike craft the Venerians have built in hundreds of years, and it hovers over us between here and the moon. The craft is equipped with his newest invention, which will stop the war in a few hours. I shall communicate with him, and receive my answer through Iden, my go-between, who is also on the craft."

Jim closed his eyes in quiet thought. In a minute or two he opened them, smiling, and with an air of intense relief from stress.

"Gentlemen, hostilities shall cease within four hours. As you know, no force has yet been landed on our soil, and their advancing navy, together with their troop ships, is the chief menace at present. Just what their reaction is going to be I do not know, but I do know that their entire forces shall be rendered ineffectual. Within twelve hours, their nation shall be begging for mercy.

"I, for one, am going to my hotel and get some much needed sleep. I advise you to do likewise, for your principal worries from now on are going to be the means of getting the volunteers back from California, and points west."

XII

A VENERIAN space cruiser, the X-1, raced toward earth. It was much smaller than the Number 6, commanded by Amoor, but built on the same general lines. The fact that it carried Verbilin's newest invention was evidenced externally in two ways. Just back of the pilot's gondola there was a thick glass-like plate in the under section of the hull, placed there for the purpose of allowing an observer a full view of any terrain below him. Directly to the rear of this plate there were two systems of antennae. The innermost antenna consisted of a single metallic rod a quarter of an inch thick and a foot long. An adequate insulating bushing supported it, and carried a connection to it through the hull. Surrounding this solitary antenna, and equally spaced upon a circle three feet in diameter, were twelve metallic rods two feet long. These were not insulated from the hull, but were mounted in ball and socket supports so that each could be moved in any direction. They formed an auxiliary antennae system for directing the rays from the single fixed antenna, and were controlled from the inside at will. When the auxiliary antennae rods were parallel and pointing in any direction, they focused the energy of the transmitting antenna in a single beam in that direction with only slight divergence, such that, at an altitude of five miles, the zone covered by the rays was an area three hundred yards in diameter. By spreading the auxiliary antennae rods, the ray could be broadened to cover any area within the limits of the horizon.

ABOVE the transparent plate in the hull of the ship was the ray-control room. Most of the equipment was to the rear of the plate. There was a comfortable seat facing directly forward. A slender but rigid column supported a pair of extremely powerful binoculars at eye-level just in front of the seat. Ahead of this there was a mirror at a forty-five degree angle just over the glass-like plate in the floor, so that the operator could view the surface below by sitting quietly and looking straight ahead. There were two small control desks on either side of the operator's chair fitted with remote control keys, similar to those used on a small telephone exchange, and a few instruments. Cover-

ing the plate in the floor there was a semi-transparent, flexible shutter. This shutter allowed a clear view of the surface below through the variable opening in the center, and only partially obscured the view through that portion of the shutter, which remained unopened. It was automatically controlled by the same means that operated the directive antennae, so that it defined to the operator the zone covered by the ray. To the rear of the operator's chair there was an array of generators, tubes, batteries, coils, and shields of an apparent complexity that surpassed description.

The enemy fleet was within a hundred miles of the California coast when the X-1 finished its mad race at a point in the heavens several miles above it. Verbilin lost no time in going about the job he was to do. Even as he signaled his navigator to keep abreast of the center of the fleet, he proceeded with certain adjustments of his apparatus to secure the desired strength of ray. He then focused the directive antennae so as to include all of the ships but the one most lagging, and operated the master key. The single, fixed antenna radiated thin blue streamers a foot long, crackling, hissing, sparkling; not dazzling to the eyes, but terrible in their effects.

DOWN below, in the fleet, pandemonium reigned supreme. Not an individual within the zone of the ray escaped its curse; they were all converted instantly into madmen. No insane asylum in the world could present so complete and varied an exhibit of disordered human minds. There were raving idiots, babbling fools, maniacal murderers, and fiends. There was no ship on which at least a score of fights was not started at once, and most of these ended with death for one or both contestants. The orderly procession of the ships broke up at once, and the fleet lost headway.

Verbilin surveyed the scene below him through his powerful binoculars for several minutes, and debated his next move.

"The fleet is powerless," he muttered, "but not destroyed."

Evidently he was not satisfied.

"It should be destroyed!" he muttered again and again, even as he watched some of the men destroying themselves, but not their ships.

At length he decided on an experiment, the results of which, if unsatisfactory, could be remedied easily. The original ray from his machine had lasted but a few seconds, but it had been sufficient to remove the last vestige of intelligence from even the strongest minds. By changing the ray, it was within his power to restore them to complete sanity, or partially so, as he chose. The experiment involved flashing a ray at the fleet of only the slightest duration so as to partially restore the many insane minds. Accordingly, the single antenna rod again radiated pale blue streamers, but of a slightly different shade, and only for an instant.

The results of this experiment were not at once evident. Many of the men remained maniacs, while others became something between that and a half-wit. About half of the men realized vaguely that they had a post of duty and returned thereto. A few firemen fired their boilers in inefficient fashion; engineers ran their engines at full speed ahead, half speed, or reverse; and helmsmen piloted their ships in dizzy, drunken, erratic courses. Then a half-wit chief gunner seemed to realize that guns were to be shot at some time or other, and, after calling together as many of his assistants as he could muster, fired a broadside with the ship's biggest guns. Every shell scored a hit, for there was a sister ship alongside not a

hundred yards away. The suggestive power of this broadside on other half-wit chief gunners was complete. In a very few minutes, from all sides, a roaring, thundering cannonade was on. Shells screamed over the water in all directions, wreaking havoc and destruction.

Torpedoes churned the water like a school of fish.

AN airplane carrier disgorged its airplanes. Half of these struck the water under the guidance of their dazed pilots, half of the remainder crashed with each other, but a few stayed aloft long enough to drop gas bombs. Of those dropped, two hit battleships, exploded, and furnished enough gas to wipe out every man in the entire fleet.

The Captain of the one unaffected ship had stood by and surveyed the catastrophe in amazement. When several ships had been sunk, either by shell fire or by being rammed, he sent a message by radio to his government telling what he saw but could not understand. That was the last message his operator ever sent. Verbilin had waited for this, and when it was complete, turned the insanity ray on this one hitherto unaffected ship. It joined the mêlée with the others, and was lost.

Thirty minutes later the X-1 cautiously descended to a height of one thousand feet over the scene of destruction, surveyed the damage, and swiftly sped away toward the west. That survey disclosed that on the few shell-torn ships still remaining afloat not a sign of life remained. The fleet had been thoroughly destroyed.

An hour's time was required in sweeping the enemy country with the insanity ray. It required a certain amount of care to cover the entire country and yet not allow the ray to affect any portion of a neighboring neutral country. At the same time, certain zones were spared. It was Verbilin's desire that the chief executive of the country be kept informed of what was happening throughout his nation, consequently, a zone a mile across immediately surrounding each important radio station was not swept with the ray. Foreign embassies were spared, as well as were the nation's capitol buildings and war offices. The strength of the ray used was sufficient to convert those with mediocre minds to maniacs, and those of stronger minds originally to half-wits. When the country had been swept from boundary to boundary with the devastating ray, the X-1 soared aloft to an elevation of a hundred miles and prepared to wait for results.

IT required less than two hours for the attacking nation's chief executive and war leaders to come to terms. Through reading their minds, Verbilin was aware that any terms of peace that would stop the madness and destruction would be acceptable. The railroad wrecks, the burning factories and exploding arsenals, as well as a myriad of other disorders, including howling, gibbering madmen parading the streets, were enough to drive a sane man crazy, and were to be stopped at any price. The X-1 descended, and Verbilin dictated the terms of peace through a loud speaker as his small cruiser hovered over the War Department buildings. They were accepted.

For the last time, and from a height so far above that the ship was invisible to the naked eye, a small antenna rod radiated pale blue streamers for a second or two, and was still. A paralyzed nation regained its lost intelligence and began to set things in order even as it wondered at what had happened to it. Fire Departments began to combat the various conflagrations, and martial law was declared in devastated

areas until the damage could be repaired.

A dozen apprehensive men called at the British Embassy. They were the highest officials of a defeated nation.

"We should like to arrange for a conference in London with the Americans to arrange indemnities and peace terms," they said.

The British Ambassador surveyed the group coldly. He had been thoroughly posted on all that had happened through his own channels of information.

"So you are ready to listen to reason at last, are you?" he commented, feelingly.

"Who wouldn't be!" exploded the Minister of the Navy. "No ships, all arsenals exploded, the country burning, and that wizard from space promises to convert our entire nation into maniacs again, never to lift the spell, if we make another aggressive move!"

"Oh, I see!" muttered Britain's diplomat. "It seems just, considering what you did to Los Angeles, San Francisco, and Seattle. . . . Very well, I shall take action at once."

* * * * *

ITS work finished, the X-1 rocketed through space toward Venus at ever increasing velocity. Verbilin sat alone in his tiny but luxurious compartment wrapped in thought.

"I have caused thousands of human beings to meet their death," he reflected, sadly. "Thousands—tens of thousands! Horrible! And it was *I* that had to do it. *I*, who have spent the better part of my life endeavoring to enlighten the lives of men, to bring the human mind a step nearer the ultimate perfection, to have turned to killing! . . . And yet, if I had not done so, how many millions would have died! The bloodthirsty demons! They had it coming to them. And should not the unspent blood of millions wash my hands clean of the foul blood of thousands? It must. What could be the meaning of justice if it were otherwise?"

FEELING that his part in the tragedy was justified, he dismissed the thoughts that would have troubled his conscience, and continued in a different vein.

"What a powerful weapon this really is! If we had had this a year ago, we should not have had to worry about defending ourselves against the nation I have just punished so severely, nor against any other. I would not have had to take the time to train James Lee as I did, nor would we have had to do anything else but appear on earth and take what we wanted, and it would have been simple enough. . . .

"Idle thoughts! Why should I regret our time and trouble in behalf of the Earthlings? I do not. After all, Venerian or Earthling, we are all men that live, love, work, and die—why should not Venerian regard Earthling as his brother, and help him where he may? And it will be much more pleasant to deal with a race that is manfully striving for more intelligence, and the better things this life affords. Who knows what the two worlds may accomplish a thousand years from now? . . .

"Jim!" Verbilin's eyes lighted with pleasant thoughts. "What a fine young Earthling he really is. If he and Madge will only be as pleased as I hope they will be with what we have planned for them."

There was a knock on the door and the ship's chef entered.

"Your lunch, sir."

Verbilin surveyed the lunch that was spread before him, and assumed a sour look. The meal consisted of tubers, varieties one and five, bread, and synthetic milk.

"All out of the Mercurian 'mertles'?" he asked.

"Yes, sir, the last were used at the last meal."

The cook departed, and Verbilin began the distasteful process of appeasing his appetite with food that had long ago lost its appeal.

"Odd," he reflected. "Nowhere in the solar system have we found an intelligence to equal that of our own, and yet we must cultivate the friendship of the children of earth that we may satisfy our palates."

XIII

THE war being over, the work of preparation to be completed ere the Venerians would officially call upon the earth proceeded apace. A special election was called, and "The Thinkers'" candidates were swept into office by overwhelming majorities. The voting public had had a taste of the benefits of association with the Venerians and demanded more of it. Incumbents of political offices to be succeeded were forced to resign, and the new order began. An enthusiastic President assembled a new Cabinet, and was immediately besieged by the diplomats of the principal foreign countries, who wished that they, too, might set up friendly relations with the Venerians. In Congress assembled, the new Representatives of a grateful nation passed their first resolution to the effect that, as far as they knew, America was ready to entertain its friends from the second planet.

The Venerians declined. While it was no longer necessary to postpone their friendly visits for fear of their own ultimate safety, it was felt by the Committee on Venus that a still further evidence of good faith on the part of the earth would, in the end, work to the ultimate good of both races. They made suggestions, and these suggestions were followed.

By special action of governmental authorities, Jim was granted an exclusive patent on his interference eliminator within a week. This was promptly assigned to the Union Electric Company and the manufacture of a limited number of super-sensitive radio receivers was begun with the closest regulation. These original sets were for political uses only, and, through them, the Venerians trained a selected corps of prosecuting attorneys, police officials, and judges in the art of mind reading, to be used in the detection of criminals and others operating to the detriment of the public welfare. They accomplished marvelous results, yet they were not overworked. They were delighted to learn that the crime business was on the wane.

TWO psychology professors, volunteers from a university of high standing, received special training in the art of operating the machines for giving electro-therapeutic treatment to criminals. Such a machine was delivered to them, and, by special dispensation of Congress, they commenced the rounds of the prisons. In a few months, all prisons were emptied, and only a few of the convicts died under the treatment. The machine and the two professors were then loaned to Canada, afterwards to be loaned on other continents. Most of the prisoners discharged found themselves able to take their places in the world's affairs with unimpaired ability. Only those hardened criminals who, by nature, had never been capable of anything else had their initiative removed by the treatment and were thus changed to a new class of reliable and trustworthy unskilled laborers. The citizens of the United States accepted the two new classes with kindness, even as they began to feel the effects of the powerful thought machine, radiating thought energy with philanthropic modulation, located in the frozen

Arctic wastes, and cleverly concealed there.

Diplomats from all over the world gathered in Washington and began the labor of forming a new government, to be known as "The United Nations of Planet Three".

At length the World thrilled to the announcement that the Venerians were coming. A dozen space ships were flashing through space, loaded with scientific equipment, articles of trade, and passengers. One ship contained passengers only, these numbering two hundred men and women. Some would return to Venus, but, for the most part, the list was made up of Venerian citizens who expected to remain on earth from one to five years. There were scientific leaders, educational leaders, and a corps of diplomats who expected to set up embassies in Washington, to serve the Americas, and in London, to serve the rest of the World. The passenger list or the purpose of the Number 6, commanded by Amoor, was not disclosed.

Inasmuch as the usual airport facilities were not required for the Venerian space ships, they were to land at the great football stadium at Fittsburgh in order that the tremendous crowds anticipated might be more easily handled. The day of arrival found it filled to overflowing with an orderly but intensely excited crowd.

THE field itself was clear of all persons except the reception committees. There were two of these. The first consisted of three persons: Jim and Madge, accompanied by S. M. Watts. When these three had done the first honors, the second committee, composed of numerous city, state, and national notables, were to extend to the visitors the nation's welcome.

Twelve faint discs of light in the sky announced the near arrival of the space cruisers, and the crowd began to cheer. The cheer grew to a lusty roar that rent the air and paralyzed throats as the twelve ships arrived and circled the stadium slowly at a low elevation.

Eleven of the cruisers took up an oval formation above the tiers of seats, noses pointing inward, while the twelfth, the Number 6, descended in the center of the field. A nervous chauffeur raced the car bearing Jim, Madge, and Watts to meet it.

A detail that bothered Jim some in his speculations regarding the handling of the cruiser when landing on a field with no mooring masts was quickly solved. With the bottom of the hull barely a foot off of the ground the cruiser stopped its descent. From four points, two near the nose, and two near the tail, legs extended like hydraulic rams, each carrying at its extremity an outer section of the hull about a yard square. These yard square sections were carried on swivel joints and made a flat contact with the ground. They had no sooner leveled off than two vertical rays of pale white light emanating from the top of the cruiser betrayed the operation of rocket tubes whose force served to anchor the weight-neutralized ship on its footings.

From a point near the middle of the hull, and on a level with the ports, another section of the hull was seen to recede inward several inches and then to disappear upward like the cover of a roll-top desk. A figure appeared there and lowered a ladder to the ground. A-daven and Alva-rado descended this ladder, to be followed a few moments later by Amoor, commander of the cruiser, while Jim, Madge, and Watts made their way to meet them.

INTRODUCTIONS were not necessary between A-daven, Madge, Jim, and Alva-rado, and the others, while hardly necessary, were quickly made.

Madge occupied herself in a bubbling conversation with Alva-rado, Jim with A-daven, and Watts with Amoor. In a moment or two, however, the conversation became common to all.

"Did you have much planned for us?" asked A-daven. "We are certain we shall appreciate your program to the fullest, but we have a program planned for your benefit, also. Perhaps we had better mention it now before we go ahead, so that we may iron out any conflicts."

"Madge and I have thought about the matter a great deal," responded Jim, "and we offer you our proposed entertainment and reception with a bit of misgiving. There are no precedents for us to follow in entertaining visitors from another world, you know, to give us a lead as to what would be the most appropriate. We finally decided that, you being willing, we should like to be a bit selfish; to keep ourselves as separate as possible from the throngs, excepting possibly the big reception to-night. We should attend that, I think. If you like, we shall attend them all, not only here but in several other cities, but, if you had rather not, we thought we might leave the receptions to the diplomats. In the latter case, we planned to slip away *incognito* to visit various beauty spots and resorts on this continent. By so doing, we hoped to secure a certain degree of privacy which we could use to build up that friendship between us that we feel is only started. The sights and beauty spots we can show you might not be so much compared with yours on Venus, but, even at that, we would at least have the privacy I spoke of."

A-daven and Alva-rado smiled happily.

"We'll go to the first reception," returned A-daven. "After that, your plans suit us wonderfully, and we shall leave the reception to the diplomats, as you suggest. Perhaps we may be able to work out our two plans together in the initial stages.

"YOU will remember that we proposed to outfit a scientific laboratory for you? And that we also proposed to give you a course of training in our advanced science, that would make the laboratory all the more valuable to you? One of the cruisers above us has the equipment for that laboratory aboard it. It will take a year to build it, and it will take slightly over a year to give you that course of training. The training can best be given on our own planet, Venus, so we offer to transport you to our planet for that period as our guests and as our first visitors from earth."

Madge bubbled over and interrupted A-daven.

"Oh, how marvelously wonderful!" she breathed. "Out in space to Venus, and circle the moon on the way! Jim, aren't you thrilled?"

"I am that!"

"Then how is this idea," resumed A-daven. "We shall attend the reception to-night, and as soon as we can thereafter, we shall slip away in the Number 6 with Amoor. It has been reserved especially for us, and the four of us will be the only ones aboard aside from Amoor—you'll like him—and his crew. We shall sail over some of these beauty spots you want to see, then set out for Venus *via* the moon, and take our time. The only thing we need wait on is to put aboard a stock of your earth foods, for I am afraid you would tire of ours very shortly."

"I'll take care of getting the food," put in Watts. "You young folks can enjoy yourselves better by not having to worry about that."

Something in Watts' voice reminded Jim of his responsibilities.

His face now clouded with disappointment.

"I am sorry, but I forgot for the moment," he said. "A-daven, as you know, Mr. Watts has been of tremendous assistance to me, and I can't leave him in the lurch. In the last few months I haven't had such a great deal to do in promoting the recent political upheaval, considering the great assistance I got from your people in picking candidates and the way 'The Thinkers' handled their work, so I have done considerable work earning my pay as a consulting engineer for the Union Electric Company. There are several things going on right now of importance, and if I leave for a year or so just at this time it will mean serious delay and a considerable loss for the Company."

"THAT is true enough, Jim," replied Watts. "We stand to lose, but, on the other hand, you have helped us enough to compensate for it, and when you return, you may help us a great deal more. I think you have earned what the Venerians propose."

"I think we can take care of that satisfactorily," said A-daven. "My youth may seem to deny it, but, nevertheless, I am Assistant Chief Electrical Engineer for 'The Electric Works' of our planet. We have only one such organization, and consequently it is a giant in size compared to yours, with branches on all continents. I have a large corps of assistants, and we have brought one along to do Jim's work in his absence. Jim will have to apply himself diligently to take his place when he returns, if he wishes to do so. Your developments need not suffer."

That Watts was vastly relieved was quite evident.

Jim smiled in relief.

"I see I was right, and you are an electrical engineer at that. Then what were you doing on the original Search Details?"

"Just pastime, until I ran across you on the threshold of your invention, when I spent more time on it."

"Pardon me, but we are making all these people wait," interrupted Alva-rado.

Signals were given; the passenger ships descended; and reception committee, number two, advanced to meet its guests. Amoor and Watts joined the second contingent, while Madge, Jim, Alva-rado, and A-daven picked their way across and off of the field and away from the stadium in Jim's car.

"LET them introduce themselves," laughed A-daven. He was seated between Alva-rado and Jim, and the latter, out of the corner of his eye, noted that his hand softly sought out the hand of Alva-rado as they settled back for their first ride in an earth-made conveyance.

"You two have been holding out on us for a long time," protested Jim. "There is no time like the present to start telling us what's what and why, and getting started on that friendship."

"We have been holding out on ourselves, too, Jim," replied Alva-rado. "On Venus we have a ceremony of marriage much like yours, and A-daven and I are going to be the principal actors in one shortly after we return. We have waited for some time in order that you and Madge might serve as best man and matron of honor, if you will."

"Will we?" exclaimed Madge and Jim in unison. "I'll say we will."

They laughed together, and thus really began a friendship that was known and admired and talked about the two planets over, and became symbolical of the tie that bound the two worlds in a state of harmony, each assisting the other, as the new era of time began.

THE END

The Beam

By MILTON KALETSKY

GAYLE dropped the wrench with a sigh of satisfaction and stepped back to view the latest product of his delusion-tormented mind.

To anyone else, the mass of apparatus assembled upon the table would have appeared a meaningless jumble of swooping tubes, arching cables and gleaming brass cylinders, all converging toward a slightly concave mirror before which was a squat glass bulb, remotely resembling an electric lamp. The wild confusion would have caused the spectatom immediately to classify the device as the work of a madman.

Gale *was* slightly insane. Ever since the one really great idea of his then balanced mind had been purloined by one whom he had considered a friend, and had been developed and patented before he had completed experimentation, Gayle was certain that every person who evinced any interest in his creations, had, as an ulterior motive, the theft of those inventions. And so he secluded himself, admitting no one to the laboratory wherein he toiled endlessly.

Now he gazed upon the machine before him, laughing softly and muttering incoherently.

A success! Another success! These were the thoughts tumbling through his deranged brain. Although not one of the many weird machines, which crowded the room, had ever functioned as intended, all were regarded by Gayle as successes, requiring but one slight adjustment (which was never made) to accomplish the miraculous wonders and to display the marvelous powers he ascribed to each. The officials of the Patent Office he cursed for being blind fools who could not, or would not, recognize genius.

Gloating over the culmination of months of concentrated effort, he caressed the glistening mirror and bulb and recalled the news that had plunged him into frenzied excitement. At last his great opportunity had come!

FROM Leningrad had arrived word of a remarkable discovery by one, Dr. Gurwitsch* Quite accidentally it had been found that the cornea of the human eye emitted rays, a fact formerly considered a superstition. The composition of this radiation, which was entirely invisible, was undetermined. Its peculiar property was stimulation of living things, stimulation of growth and reproduction. Yeast cells, gazed upon unvaryingly for a short period, were hastened in their processes of growth and reproduction to a surprising degree.

In his madness, Gayle at once perceived a means of revenge upon a society which would not accord him his proper position as the world's leading benefactor, and which described him as "cracked."

To him nothing was impossible; the greatest obstacles would fall before him, for obstinate natural laws would be superseded by his own laws, specially constructed to suit his needs.

With this thought in mind he proceeded to duplicate the experiments of the Russian, confirming all the latter's statements. His joy was unsurpassed

*Associated Press, July, 1933.

at the discovery that animal life was similarly affected when subjected to the influence of the radiation from the eye. Whereupon he rubbed his hands in glee, and set about building a device which would produce such rays with many thousand times the intensity of those generated by the cornea.

He was finished. There reposed the machine; his penultimate goal was achieved. The vengeance he desired was at hand. He would seek out other malcontents, convert them to his cause, and then . . . his eyes sparkled . . . he would expend every cent he possessed, would scatter hundreds, no, thousands of these "Eyes" as he affectionately called them, throughout the world, and his faithful associates would train the beams upon the unsuspecting populace of every town and city. An exposure of merely a few seconds would be sufficient to produce the desired effect. It would take long, but he could wait, yes, he could wait, and so cleverly would the "Eyes" be placed that no one would ever guess their real purpose.

Only in towns and cities, only where there were human beings in great concentration, would these machines be placed, for there they would render the greatest service. Within a few years, when nearly everyone had been affected by the rays, the population would be multiplied sixteen or even thirty-two times, even as the yeast cells multiplied so profusely in a few hours.

HE cackled shrilly, happy in the contemplation of the inevitable results of his satanic plans. During that period, as the population grew so rapidly, despite attempts to prevent this inexplicable increase, hunger would come forth to torture the human race; man against man, brother against brother, in desperate conflict to secure the smallest scrap of food. Bloodshed and death, riot and destruction, would be the order of the day, as starving billions madly seek unattainable sustenance.

And this would be Gayle's revenge. His hands, at this thought, so sweet to him, slowly clenched as though he were choking the life out of the human race.

Panting hoarsely, he turned to rush from the laboratory to obtain a small animal upon whom to test the "Eye." Impatience held him. It would take too long to find a rabbit or a dog at this hour of the night. His face lighted with sudden inspiration, *he* would be the subject of the test.

Whirling around, he ran to the control board, pulled a switch and stepped before the mirror and bulb to be completely enveloped by the beam.

A faint hum spread from the machine and several of the tubes glowed. Nothing more occurred. Gayle frowned and moved toward the table.

He halted. A feeble tingling made itself felt. Ah, the rays! Motionless he stood, yet palpitatingly eager. Only ten seconds to wait, yet ten passed and no unusual manifestations were visible. Rage, and fear that he had failed, shook his emaciated body. Gibbering, he tensed to spring at the table to tear his creation apart in his mad fury. Then. . .

Terrific forces seized his frame, giant hands tore at it, ripped at him, clutched his viscera in a crushing grip. An instant of unbearable agony, of shrieking and whistling, of vivid colors flashing kaleidoscopically before him, of intense nausea ensued and was over, leaving him pallid and trembling.

Breathing agonizedly, he remained as he was. A subtle change in his surroundings clamored for recognition, but went unnoticed as a presence beside him impressed itself on his consciousness. Slowly, fearfully, he turned his head and the figure at his side imitated his movements exactly. Eyes bulging, he peered.

The creature was scarcely more than three feet tall, emaciated and horribly familiar in its nakedness. The floor drew his attention and the figure's also. Between them lay every garment Gayle had worn when he had stepped into the beam.

Again the pandemonium of color, sound and force blotted all from his mind and again it ceased, leaving four figures, four that were one and yet not one. Gayle, completely insane, stared at his three companions, was conscious of his smallness and of theirs, felt their gaze upon him, but could not determine which of the four was he, nor could he tell whether he were all four.

As he glared he saw them grow, grow and expand under the influence of the beam, and as they grew a great hunger assailed them. This growth, however, was cut short by the lack of food.

FROTHING at the mouth, they darted forward simultaneously, one thought alone in their collective mind: to shut off the beam. Wailing, jabbering, and though composing one intelligence, and yet, not one but four, the quartet interferred with one another and could not act concertedly. But the driving motive endured. A chair was finally dragged to the table. Four tiny maniacs fought to mount, four that became eight when in the middle of their frantic clambering the beam again took effect.

Eight miniature human beings, eight such as had never before existed, reached the table-top, but too late! Once more the rays took their toll. In the moment of agony so excrutiating that even the frightful pangs of hunger were drowned out, sixteen Lilliputian Gayles collectively toppled from the table.

As for an instant, in mid-air, consciousness returned, the sixteen unfortunate brethren together became cognizant of the fatal error Gayle had made in not providing an automatic circuit breaker for the generator of the rays.

Sixteen tiny Gayles struck the stone floor, falling one upon the other.

The machine droned on, the beam impinging on the twitching heap of bodies.

* * * * *

A light morning breeze blew through the room, stirring up the mound of dust, lifting the particles, puffing them out the windows, forever to be scattered.

The machine no longer murmured. A minute before, a tube had flickered, had brightened, flickered once more and had finally snapped out. Gradually the others dimmed, the low hum died away, the flood of rays ceased. The invisible but potent beam was no more.

In the light of the glorious sun danced the usual particles of dust, danced and twirled, and with them the motes lifted by the wind, but these motes danced not. Rather they seemed to writhe and twist as if possessing some unhappy inner life.

These latter motes, as the zephyr played with the dust, quieted one by one, and ceased their tortured writhing as though the life within were stilled. And indeed, that life *was* hushed.

For the motes that were Gayle were dying—of starvation.

THE END

The Barrier

By HARL VINCENT

We have had a number of interplanetary stories by this author which have been very highly appreciated by the Editors and our readers. Here we have a touch of interplanetary plot, the real drama being carried out upon the earth.

DROPPING his aircab from the night traffic level and hovering over the place at dawn, Peyton could see nothing about it to justify the fears of his companion. It was just an ancient landmark, a rambling, frame mansion of the past century, hidden away and forgotten in the scrub oak woods, now covering this deserted section of Long Island.

"Sure this is it, Pete?" he asked his companion.

"Positive." Peter Canfield gripped the arms of his seat and peered anxiously through the floor port.

"Looks harmless enough. I think you've been dreaming."

"Would I waken you in the middle of the night to bring me out here if I wasn't sure? I tell you something's wrong, Bert."

"Marian is down there?"

"Just as I told you. The government planted her boss here for some special research. Daniels, you know. Of course he brought her along."

Albert Peyton, prosaic advertising man and confirmed bachelor, could hardly work himself up over his friend's worries. Nor could he bring himself to believe the incredible tale Pete had brought to him in the small hours. "This wall of yours," he drawled. "I don't see it. How'd you say you come to find it?"

"I told you it's invisible," returned Pete wearily. "I didn't hear from Marian for a few days so tried the radiophone. There was no reply. Anxious about her, I came out in the speed boat—my aircab's laid up, you know. Had a devil of a time getting inland on foot too. Then the wall held me back, so I went after you."

"What's it like, glass?"

"No-o. It's yielding, rubbery—seems to be alive if you get what I mean. Pulsating, sort of. As invisible as the air."

"No surface reflections?"

"No, just nothing. I heaved a rock at the stuff and it bounced off without a sound. Was flung upward too."

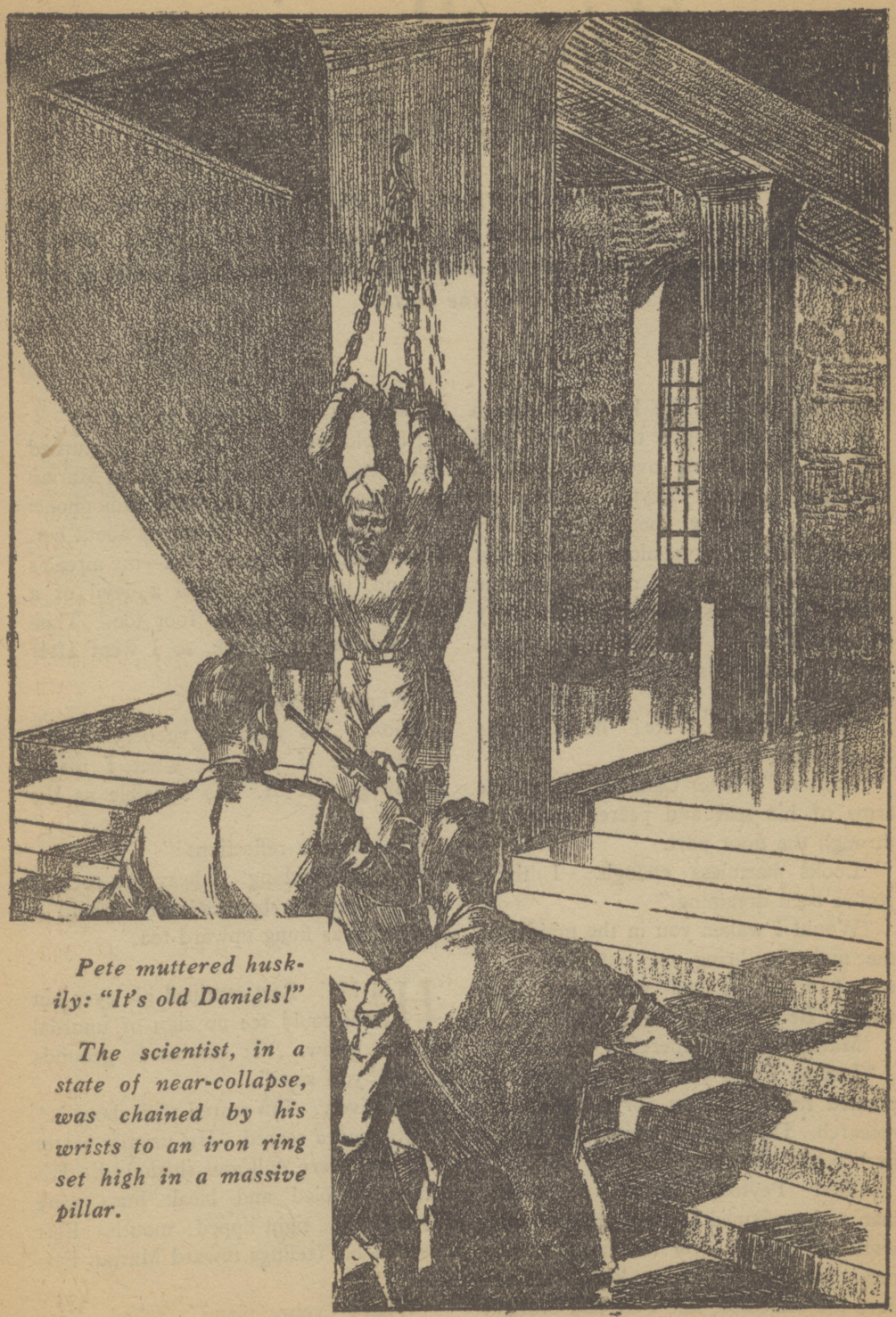
"HM-M." Bert strained his eyes but still could see no sign of unusual purport below. "It surrounds grounds and all, you say?"

"Positively. I'm scared stiff about it."

Pete *looked* scared. His usually bright gray eyes were dull and shadowed. His hands trembled and bleak lines were around his tight-lipped mouth. Bert knew of his feelings toward Marian Persons.

"What's your plan?" asked Bert. "We're here now."

"Drop *inside* this barrier. See?—it's



Pete muttered huskily: "It's old Daniels!"

The scientist, in a state of near-collapse, was chained by his wrists to an iron ring set high in a massive pillar.

a wall and we'll land inside. Find out what's what."

"No one will be up yet. It's too early."

"So much the better. We'll surprise them."

Bert nosed the aircab down and headed in toward the clearing in back of the house. "This all right?" he asked. "Think we'll be within the limits of your wall?"

"You're okay; bring her down."

Try as Bert would he could see no evidence of the existence of a transparent wall; there was no slightest clouding of his vision. He still doubted.

Easing off the gravity repulsion energy he allowed the aircab to settle slowly. When a hundred feet from the clearing they were brought up short with a bump no heavier than an ordinary landing on solid ground. But the little cab bounded high, settled and bumped again, bouncing and careening as if on the surface of some yielding solid.

"Good Lord!" Pete groaned. "There's a roof, too."

It was true. The ship had come to rest; this roof supported it, though both of the men would have sworn that nothing but the fresh morning air separated them from the ground. The atomic motor died. They were helpless to rise from this incredible unseen support.

Then, without warning, they were falling. Whatever had stopped the aircab and held them from the ground had given way, or had been removed by unseen hands, and they were left to crash earthward. The little craft turned partly on its side and struck with terrible force.

Abruptly there was darkness, not the ordinary darkness of the night but absolute Stygian inkiness.

Dazed by the shock, Bert knew only hazily that Pete had crawled from the cab and was dragging him out, asking if he was hurt, feeling his body in search of broken bones or other casualties.

"I'm blind! I'm blind!" Bert gasped, the conviction coming horribly to his returning senses.

Peter Canfield laughed crazily.

"Blind, hell!" he chattered. "The sun went out. I saw it through the trees, then it just faded away and died. A little after-glow, then . . . nothing."

Bert was sure Pete's mind had been unbalanced by the crash. Both of them were blind. Whoever or whatever had dropped them through that invisible roof had also blinded them by equally mysterious means. Of course the sun would go out, just as Pete had described it.

There was nothing before nor since like that awful darkness. It was utter absence of light; thick and stifling. At first the silence was as awful as the darkness. Eery; a complete absence of sound. Were they deafened as well as blinded? A distinct gasp from Pete reassured Bert on that score; and they heard the ominous rustle of things creeping in the dark—live creatures closing in on them stealthily.

THEN they were fighting these assailants in their blindness. Back to back with his friend, Bert struck out ineffectually, weakly. A man can't fight an enemy he can't see. Fingers of steel closed on Bert's wrists; a sweet odor assailed his nostrils.

It did not render him unconscious, that gas, but bereft him of the use of his muscles as completely as if he were paralyzed. He was helpless in the strong arms that lifted him and bore him away. Sounds in the blackness apprised him of Pete's similar treatment.

The distance to the house must have been short, but, in Bert's condition of mortal funk brought on by the uncanny

happenings, it seemed an age until their captors halted. There were snarled, unintelligible conversations and Bert was gripped the tighter as the one who held him waited.

A door opened. Light streamed forth from behind that door. Light, blessed light! Dazzling; the most welcome sight of Bert's lifetime. He laughed then, loudly and crazily; he was *not* blind. His captor shook him with violence.

Bert commenced to take notice of his surroundings.

They had been taken into the drawing room of the old house by their captors. With the effects of the gas still lingering, both remained docile and silent.

A powerfully built stranger was tying Pete hand and foot. Bert's captor, equally powerful of physique, was doing the same for him. His was the most repellent face Bert had ever seen. Close-set, yellowish eyes stared from it ferociously, and a livid scar extended from below the right eye to his chin, deforming both lips as it crossed the hard mouth—a face never to be forgotten.

The one who had Pete in hand was as bad. They were a tough pair, strangely unhuman in appearance. What they were doing in Daniels' hideaway was as much as a mystery as were the happenings outside.

An oily voice from the doorway broke in on them. "What is this?" it demanded in perfect English but with an accent Bert could not identify. "Whom have I the honor of welcoming as guests?"

The speaker was taller and of more aristocratic bearing than their captors but was obviously of the same nationality. He was a handsome chap and polished, like the titled sort so attractive to some of our impressionable debutantes.

Pete growled in his throat.

"Will you be so kind as to answer my question?" the newcomer asked in measured, silky tones.

The captives were not deceived; sinister warning was in those glass-hard eyes.

Pete broke loose. "Who wants to know? *I'd* like to know who *you* are, what you're doing here. What in——"

His tirade ceased abruptly as the tall foreigner sprang catlike and struck him full on the mouth with his open hand. Bert saw the blood spurt from Pete's lips, saw him tug furiously at his bonds.

"Boris! Peter!" A feminine voice, shocked and imperious, cut through the tense silence.

Marian Persons! Attired in an incongruously luxurious peignoir, flushed with excitement, with wide open eyes, she faced the man.

"WHY Boris," she quavered, "these are my friends; they can have done no harm. Release them at once."

She made as if to kneel at Pete's side, then thought better of it and laid a caressing hand on Boris' arm instead. Once more Pete Canfield growled in his throat, then he turned his head to the wall. The girl paled at the significance of the gesture.

"My dear," said the suave Boris, his gaze devouring her, "what you ask I can not do. For you I would do much, but these men have spied upon us. Our lookout upstairs captured them by cutting off the power from the energy barrier and dropping them through. They have learned too much. They must die."

"Oh no!" The girl caught at her throat, then let her hand creep up Boris' arm to his shoulder. "Please not, for Marian."

Amazed at this evidence of a close bond between the two, Bert coughed noisily to cover Pete's contemptuous sniff.

Boris' hard eyes softened, looking into the girl's pleading blue ones. "Marian," he capitulated, "for you I spare their lives. But you must realize I can not free them; instead they shall be imprisoned in the cellar until the thing is finished. Am I not magnanimous?"

The girl pouted a bit but accepted his dictum. She flashed a look at Bert he could not fathom, and at the same time was hugging Boris' arm with a great show of affection and gratitude. It was well that Pete Canfield kept his eyes averted.

Boris jabbered some orders to his men in an unknown tongue, then swaggered from the room with the girl on his arm. She clung to him as if he were lord of the universe.

Bert and Pete were locked in an empty, basement room which obviously had been a storeroom at one time. The door was of heavy oak, bound with iron straps. The place smelled of dry rot. It was as secure as a cell in Sing Sing. By good fortune they had been untied and their jailers had not cut off the power from the single electric bulb that lighted the room.

Pete was morose, and out of respect for his feelings Bert kept silence.

After staring long and unseeingly at his friend, Pete let loose: "Can you imagine a girl like Marian falling for the smooth talk of this duke or whatever he is? Within a few weeks after her promise to me, too! What a sap I've been!"

"A duke?" Bert could think of nothing else to say; he knew his friend was deeply hurt.

"That's what he claims. Marian and I met him in Miami during the summer, and he hung around her a lot. He's supposed to be an Istrian—old Slavonic nobility—but I have my doubts."

"Even so, what could be his game here?" Bert wrinkled his brow in increased puzzlement. "And where do you suppose Daniels is?"

"It's queer—the whole thing. If Marian——"

"Martians!" The inspiration striking him, Bert interrupted.

"Eh?" Pete stared; his eyes brightened suddenly, then narrowed with determination. He had forgotten the girl temporarily.

"That's what they are, Boris and his men. Notice the coppery glint to their skin?"

"You're right. There have been rumors of a possible war with Mars, too. That explains it. The World Federation has had Daniels working on offensive and defensive armament. Boris is a spy."

Bert's jaw dropped. "The barrier, and the sudden darkness—Daniels' secrets. They'll get them all."

"It's up to us to stop them." Pete was grim now. "We can't let them get away with anything of value."

Bert took stock of their chances. There was not a loose piece of anything in that bare room, not a scrap of metal or even lumber that might be used in an effort to force the massive door. They were helpless here. Besides, they knew Boris had at least two men at command; quite likely there were others. If they could escape from the cell the odds would still be against them. Bert voiced his thoughts.

"Let's sit down and think it out between us." Pete was more cheerful; all thoughts of Marian Persons seemed to have left his mind.

For many hours they talked without reaching a solution. Through it all they were conscious of a droning sound that told of the operation of a large motor or generator somewhere in the house. Eventually the monotonous sound had its effect; Pete dozed off, and Bert was not long in following suit.

THERE were ghastly dreams, a genuine nightmare, from which Bert wakened and sprang to his feet. In the first flash of returning consciousness he saw that the Martian with the scarred face was in the room. *That* was no dream; the fellow was stripped to the waist, and his smooth, bronze body gave unmistakable proof of his nativity.

Pete was already crouched, as if for a spring at the brute, fully awake and itching to mix things with him. But an ugly atomite pistol in the Martian's hand was waving him down. In his other hand, he of the scarred face held a small tray on which was a loaf of bread and a pitcher of water. Their dinner.

Mechanically, Bert reached for the tray. Then, reckless of consequences, he grasped the handle of the pitcher and swung the heavy container against the Martian's wrist. The pistol clattered to the floor and in that instant Pete was upon their jailer. Bert closed the door to muffle the sounds of combat and sprang to the assistance of his friend.

But Pete Canfield needed no aid. With his terrific short-arm punches he already had his opponent gasping for breath. That awful scar purpled and swelled as the brute tried savagely to get in past Pete's flailing arms. Finally losing all caution, the Martian dived in with lowered head.

That was all Pete needed. A long punch that started near the floor brought up with a crunch on the point of the scarred one's jaw. He went down like a sack of meal and lay there in a twisted heap.

Bert cheered excitedly. Then, remembering the danger, lowered his voice. "We're in for it now big boy," he whispered.

Pete examined his knuckles ruefully, then chortled with glee as he picked up the Martian's atomite pistol. "This'll help though," he gloated.

It gave Bert a feeling of comfort to see the weapon in Pete's capable hands.

"What to do now?" he asked.

Pete had started for the door but turned with a sudden thought. "Get his keys, Bert. May need them."

The Martian groaned.

"We're boneheads," muttered Bert. "We should have gagged him."

Strips torn from the Martian's trousers provided an effectual gag; a coil of wire they found in his pockets secured wrists and ankles. A bunch of keys clipped to his belt found their way into Bert's hands.

Opening the door cautiously, Pete peered through the crack and pronounced the coast clear. They went out into the main basement and Bert locked up their erstwhile jailer. Pete had the atomite pistol in readiness for use.

"Sh-h!" he whispered, cocking his ear. "What's that?"

Bert heard a faint moan from somewhere near at hand.

Pete muttered huskily: "It's old Daniels!"

The scientist, in a state of near-collapse, was chained by his wrists to an iron ring set high in a massive pillar.

BY clambering upon Peter's shoulders, Bert was able to detach the chain from the ring. But they could not free Daniels' hands, for the manacles were riveted fast. Pete cut the older man short when he asked for explanations.

"No matter how *we* got here," he breathed. "The trick is to get out and to take care of the mess upstairs. We haven't much time, so give us what dope you can. Then we'll make plans."

Daniels' eyes lighted hopefully, then glazed once more. "No use," he sighed. There are too many of them; they are desperate, and I'm afraid for Marian Persons. I shouldn't have let her come here. I am responsible for her safety—"

Pete snapped: "We're thinking of that too."

"But you don't understand; she's in the power of this Martian. To save my life she agreed to marry him. I feel——"

"What!" exploded Pete. "She'd keep such a promise?"

Bert warned him to silence.

"No," said Daniels. "She probably wouldn't if things could be adjusted in some other manner. But that's impossible."

"Nothing's impossible." Pete was growing impatient. "Tell us all about it; we'll see what can be done."

The story came out in cautious whispers while Bert guarded the door with the atomite pistol. Pete, being an engineer of sorts, was the man to get the details. But it was all overheard by Bert, though much of it he did not understand at the time.

Pete's surmise had been correct. With war-clouds gathering from the direction of the red planet, the World Federation had sent Daniels and his corps of experts to this place, thinking it safe from spies. The Secret Service had not suspected Boris, but Boris and his men had come and had slain all of Daniels' men. Now the Martian planned to steal all the Federation's armament secrets and return—with Marian—to his own planet. The case was hopeless, Daniels averred; there was no way they could get word to Washington—or to any of the Federation authorities.

"Nonsense," scoffed Pete. "Tell us about this barrier and the other gadgets you have here. We'll work out a way."

It developed then that the Daniels experiments were mainly in the realm of vibratory waves and electronic forces. He had evolved a terrible energy projector which could destroy human life at enormous distances, or could be used to demolish a space ship or even a city—it was an engine of destruction like none the world had ever seen, of greater range and power than any weapon of the Martians. Its operation was silent and its force ray invisible.

The barrier was composed of walls of electronic discharges, that could not be seen on account of the high speed and infinitesimal size of the particles. This was defensive armament; the largest atomite shells of Mars could not pierce its invisible armor when fired at it from outside the enclosure. Yet from the inside—it acted like a check valve—it was readily penetrated by metal objects traveling at high speed, so would not interfere with the fire of ordnance from within. The force gun, of course, could fire from inside as well.

The artificial darkness used by Boris' men when they captured Bert and Pete was another freak of oscillations or etheric waves which were of such frequency and characteristic, as to neutralize exactly the vibrations of light, leaving an entire absence of it within their influence. By such means, Daniels explained, the entire space fleet of an enmy might be blinded and rendered helpless to prevent its own destruction by force gun or ordinary gunfire.

"No wonder Boris wants these schemes!" Bert commented.

Pete was not satisfied. "Sure you didn't sell out to Boris?" he asked the inventor.

DANIELS was properly horrified. "Sell out! You must be crazy."

Bert saw that his friend did not really suspect Daniels of such perfidy; it was merely his bitterness over Marian's actions which prompted the accusation.

"I didn't mean it," apologized Pete. "But what about Boris and—the girl?"

Daniels shuddered. "It was to save me, I know. Yet I wonder, when I see her yield to his caresses. At first I rebelled when she agreed to leave with

him, but he would have killed me as he did my men. She insisted that I be imprisoned instead. Meanwhile Boris and his engineers are in my laboratory making drawings and calculations, solving the secrets from the apparatus itself."

"We'll put a stop to it." Pete's voice was grim.

Daniels turned a haggard face to his rescuers. A wan smile twisted his thin lips and he stretched out his hands. Those irons! Without further speech or even a groan, Daniels pitched forward and lay still on the concrete.

"Fainted," Pete announced, when he had rolled him over and disposed his body more comfortably. "And no wonder—poor devil."

There was still no sound from above excepting the incessant drone of the generator. Pete stood a moment in thought, his jaw set.

"We'll lick them yet," he muttered. "Get Daniels out of this, too. And Marian—if she wants to get out. Let's go, Bert."

They locked the door of Daniels' cell, fearing he might stumble out and get into trouble later. He was in no shape to be of help.

A foolhardly undertaking this, but there was no alternative. Outnumbered by desperate Martians and with a single atomite gun between them, they were in a tight place. But much was at stake besides their own precious lives. They had to go on. Creeping stealthily up the stairs, they found themselves in the long hall of the first floor. It must have been just after sunset, for the deepening gloom made of the hall a nightmare of lurking shadows and strange shapes that kept them in constant expectation of a surprise attack.

Bert handed the pistol to his friend; Pete was the better shot.

Through an alcove they glimpsed a light, and merry voices reached their ears from that point. The Martians were dining. And Marian; her trilling laugh brought Pete up short and Bert grabbed him.

There were six at table, Boris at the head with the girl at his right, and four others of the Martians. Five to reckon with; probably more. At least one must be in the kitchen.

Boris rose with glass in hand, proposing a toast—to his future bride. Pete growled and Bert dragged him away.

"Lay off!" he husked. "This gives you your chance to search the laboratory."

The second floor was deserted so they climbed to the third. It was from here the sound of the generator came.

An enormous, single room comprised the top floor and this was the laboratory, cluttered with apparatus. In a corner was the generator, of the high frequency type, and its musical note seemed hardly more noticeable here than it had been in the cellar.

Pete set about examining the mechanisms that were so mysterious and awe-inspiring to Bert. He handled them as if already familiar with their workings.

"Ah!" he breathed, after inspecting what looked like a telescope mounted on a radio transmitter. "The force gun—may help us later. Here Bert, you take the pistol and go downstairs. Watch them from a safe distance and if anything happens or if they start up here, fire three shots as a signal."

Cold chills chased down Bert's spine, but the feel of the pistol gave him confidence and he turned to the stairs.

"Atta boy," Pete whispered. "A lot depends on this."

He returned to his examination of the force gun.

THE diners had come to the point of hilarity by the time Bert reached the first floor hall. It was evident that

Boris and his men felt absolutely safe here within that invisible barrier which they kept in operation for their very security.

Creeping along the hall to the alcove, Bert secreted himself in the draperies. From here he had a view of the table end where sat Marian and Boris. The girl, flushed and smiling, had rested her hand in Boris' huge paw where the latter lay on the cloth.

It sickened Bert, yet he could hardly believe the girl was playing anything but a game. A desperate game, with their lives and the fate of a world the stakes. Pete, he knew, was consumed with jealous fury and was blinded to Marian's true motives. Being in love with her, that was probably natural for him. Bert could see the thing more clearly.

What a position! In this world of the twenty-first century, with all but five per cent of the population concentrated in the mechanized cities, to be out here, miles from civilization, beyond all hope of communication, off the regular air lanes and without radiophone or heliograph. It was a return to the primitive; Bert felt much as he thought a prisoner in an ancient encampment of savages might have felt.

They had to see the thing through, though, he and Pete. At the moment, Bert had no slightest idea as to how this was to be accomplished. But, if anyone could find a way, Pete could.

Up in the laboratory, Pete already was planning something. But could he, in a few short minutes, contrive to upset the carefully laid plans of Martian spies who had worked on the thing for months?

A move of Boris' cut short Bert's meditations. The Martian had leaped to his feet, tipping over his chair in his haste, and stood with his head cocked as if listening. Marian Persons went white with fear. A dead silence fell in that dining room. Bert missed something then—the drone of the generator from above. Poor old Pete.

Boris roared like an enraged bull and dashed through the alcove. Afterwards Bert wished he had shot him through the heart as he passed, but, remembering Pete's instructions, he fired three shots into the floor instead. The sharp spangs of the propelling atomite and the thuds of three expanding slugs created something like pandemonium in the place.

Boris was on the stairs shouting. The lights switched off and the lower floor was in impenetrable darkness. Boris' men were falling over one another in their efforts to get out of the dining room, and a single, choking scream, from the girl, told Bert of her fright.

The men had gone then, clattering up the stairs, stumbling and cursing in the darkness, clumping about and yelling when they reached the floor above.

"Miss Persons," Bert called softly. "Are you there?"

"Oh-h!" she gasped after a little silence. "It's you, Bert—I, I'm afraid—the shooting and all—what does it mean?"

Bert heard the rustle of her movements in the murky blackness; groping, he found her hand and pressed it reassuringly, even though he was mighty shaky himself.

"I'm not exactly sure," he told her. "But Pete's up there in the laboratory. I fired the shots to warn him."

The girl moaned: "They'll kill him, Bert. Oh, go to him—go up there and help."

She was frantic in her fear for Pete. Bert knew then that he had judged her correctly and that Pete was wrong. He leaped to the stairs.

HE could see nothing, but by clinging to the stair-rail managed to make progress. The sound of a single shot echoed from above, then a horrible gurgling cry followed by ghastly silence.

Panicky, feeling his way along the second floor hall, Bert was suddenly aware of heavy breathing and the padding of feet close by. He stopped short, listening. A man brushed by and he grappled with him, but his fingers slipped and the fellow scurried away. A shot from the atomite gun produced no result save mocking echoes.

Bert hesitated. What did the silence portend, and who had so furtively sneaked away? Where was the girl? He hurried to the second flight of stairs.

Light streamed down from above and he took these steps two at a time. Pete stood by the telescope-like instrument—alone! He was swaying on his feet as if dazed. The air was sharp with ozone.

"Where are they? What's become of them?" Bert jabbered.

Pete waved his hand airily. "Gone," he proclaimed. "Melted into thin air—by this force gun of Daniels' They got in only one shot at me—a miss. Then the energy from this. Horrible!"

Bert stared. No wonder Pete was dazed! There were no bodies. Nothing whatever in sight. Yet what he said must be the truth.

"H-how many?" stammered Bert.

"Five." Pete shook his head to clear it. "You got Boris down below, I suppose."

Bert started anew. "Boris! Why, he came up here. He was the first to reach the stairs down there."

Pete gripped his arm until he winced. "Boris wasn't here," he husked. "There were the four from the dining room and the other from the kitchen. Don't tell me Boris escaped!"

With his knees sagging, Bert told what had happened in the hall below. Boris had been the one who passed him in the dark.

Pete rushed to a wall-panel and closed a switch which set the generator humming—closed another that lighted the lower floors.

"Dammit!" he rasped. "Why didn't I think of it? Know what he did? Boris hid back of his men till he saw what happened, then beat it. Well, he can't pass the barrier; it's operating again."

That cleared some things in Bert's mind. Humans couldn't pass through from inside—only projectiles. And Pete had deliberately cut off the generator and the lights to bring the Martians to the laboratory, intending to take them prisoners but forced to slaughter them in self-defense. Suddenly Bert thought of the girl.

"Marian!" he exclaimed. "She's down there—with Boris loose!"

"Good Lord!" Peter Canfield went white. In that instant his foolish jealousies were forgotten. "Come on, Bert!" he yelped, and was down the stairs like a streak. Unarmed! Bert still clutched the pistol in his sweating hand.

They searched the house from top to bottom but found no trace of Boris or the girl. Pete was like a wild man when they reached the cellar. Finally he stopped at the door of Daniels' cell.

"The keys, Bert," he demanded shakily.

DANIELS was pacing the floor like a caged animal; the shooting had unnerved him. But he looked much stronger. He laughed his relief when he saw them. For some reason Pete went berserk again when he faced the inventor.

"Want to know something?" he bellowed. "That fool assistant of yours has gone off with Boris. Neither of 'em in the house, and I've killed off the rest of Boris' gang with your cute little force

gun. But the boss got away and she's with him; what do you think of that?"

"The—the barrier?" Daniels stammered. "I hear the generator."

"Yes, it's operating again. But the grounds are large—having failed in his scheme otherwise, Boris might kill her. Your fault, too. Dammit, man, how am I going to find her? It's dark as a pocket out there; not a star in the sky."

Daniels cringed and paled, then straightened suddenly.

"I've other tricks in my laboratory, Peter," he retorted. "You go out looking for them and leave your friend with me. We'll be able to help you from inside."

"Your tricks better be good." Pete took the pistol from Bert's hand and was gone on the last word.

Daniels scolded and muttered as they mounted to the third floor. Bert grinned despite the seriousness of the situation; Pete's rough talk had roused the older man to action.

Under his direction, Bert made short work of the manacles, using a tiny electric tool that cut through the steel like a knife through butter. The scientist lost no time getting to his apparatus. He made some adjustments of knobs and dials on a control board, and immediately the generator pitch altered, rising in frequency until it was barely audible.

"Guess he can see now," Daniels grunted.

Through the window Bert saw suddenly there was broad daylight. The scientist chuckled over his amazed exclamations.

"Merely a new heterodyning frequency on the wave producing the barrier," he explained quite unintelligibly. "The notes are at precisely the wave lengths of sunlight and there you have it—within the barrier itself. And still the barrier is effective; it can not be penetrated from without, and only from inside by metallic objects that travel with considerable momentum."

"Hadn't I better join Pete and help him?" Bert asked.

Daniels' eyes twinkled. "Think he needs help?"

Bert gathered that these two understood each other rather well.

The spiteful spang of atomite sent Bert and Daniels to the window. Down there was Pete, limping to shelter behind a large tree, and Boris backing away about a hundred feet off with the girl held before him for protection. She was limp in his left arm and evidently had fainited.

Boris fired again and his slug tore a huge splinter from the tree trunk. Pete nursed his right leg as he crouched there in comparative safety. But he was wounded and he dared not return the Martian's fire for fear of injuring the girl. For the same reason the watchers in the laboratory dared not use the force gun.

Pete pulled himself erect and Bert was relieved to see him able to stand. Evidently his wound was not serious. But Boris continued to back away, still using the girl as a shield. He was close by the ancient hangar now, and made a sudden dash for the door, dragging her limp body after him.

Daniels groaned: "His space car; I'd forgotten that."

"The barrier won't stop it?" asked Bert.

"No, it's fast and it's heavy; it'll break through from inside. What can we do?"

PETE stumbled out from behind his tree and made for the hangar, exposing himself to the fire of the desperate Martian. Bert tried to shout a warning but his voice would not come.

Then with a roar of its gravity motors and the splintering of the rotted

hangar wall, a slim tapered craft burst forth and taxied across the field out there. Only Boris' head showed at the pilot's port; he must have the girl in one of the sleeping cubbies.

Pete fired and they saw the slug from the atomite pistol spatter against the bullet-proof crystal of the port. The space car was almost upon him, its landing wheels just clear of the ground. Pete sidestepped swiftly as it lurched past, fell in behind and dived to the atmospheric rudder stays where he clung doggedly.

The space car gathered momentum and leaped for the brilliantly illuminated wall of the barrier. There was a ripping sound out there when it struck and the generator in the laboratory groaned as if suddenly overloaded. Bert saw the darkness of night in a great, black patch against the brightness, where they had torn through. For an instant only it showed; then the barrier was whole once more and uniformly brilliant, and as ever penetrable from outside.

"Your aircab!" Bert babbled. "Is it in the hangar? We must go after them."

"Yes," said Daniels. "It's there, but it's too light to break through. I'll cut off the barrier."

He pulled the switch and the generator died. Darkness came down like a blanket outside, the natural darkness of a cloudy night.

BERT would never have thought that Daniels could exhibit such activity as he did in the next few seconds. He grabbed a flash-light and scuttled down the stairs so fast the younger man could hardly keep at his heels. In the yard, he ran for the hangar with the agility of a youngster, lighting the way with his flash. Bert was puffing when they reached the half-demolished building.

Then Daniels was on his knees by a crumpled figure. The girl! Boris had not taken her after all. "Marian!" the scientist moaned, lighting her ghostly features with the flashlamp. "Lord, Peyton, he's killed her!"

Bert examined her hastily. "No," he declared. "It's only a swoon, and no wonder."

Looking over Daniel's aircab, he saw that Boris had slashed the tires of the landing gear and cut the rudder control cable. A fast worker, this Martian. They wouldn't be able to start for half an hour.

So they carried the girl into the house and stretched her on a divan in the drawing room. Daniels brought cold water and a sponge, and it was not long before she sat up and regarded the two men with wide, terrified eyes.

"Peter! Boris!" she exclaimed as soon as she was able to speak. "Where are they?"

Daniels explained gently and his doubt of the outcome could not be disguised. Bert's must have showed in his expression. Two spots of bright color flared in the girl's cheeks and she rose in terror and indignation.

"Why did you let him do this?" she stormed. "Boris already has complete plans of the war-machines; I was trying to get them away from him. Now—he has started for Mars. Peter will freeze to death in the upper atmosphere—or suffocate—or——"

"Listen, my dear——" Daniels commenced soothingly.

"Don't dear me!" the girl snapped, and Bert saw that she was perilously near the breaking point. "If anything happens to him it's your fault—it's——" She turned on Bert. "You too, Bert Peyton. He's your friend; you might have followed him you——"

Then, womanlike, she buried her face in her hands and sank to the divan, sobbing hysterically.

Daniels regarded Bert helplessly.

From somewhere overhead came faintly the roar of a motor; it drew near, then faded away, drew near once more. It was Boris' space car. Bert's heart did a flip-flop. The thought of the barrier, then remembered it was cut off. Pete *must* have won out.

Recovering in a flash, Marian Persons rushed to the vestibule. By the time Bert and the scientist had joined her, she had the doors open and the porch lights on. Overhead they saw the flickering of landing lights; then a black shape swooped down out of the darkness and rolled to a stop with a screech of landing-gear brakes.

The nose of the space car was not twenty feet from the rickety steps. Its entrance port opened and Pete Canfield climbed out, dragging the helpless Boris with him.

Speechless, the three on the porch watched as he moved painfully toward them with his awkward burden. An unconscious man is not the easiest load to handle, especially when the bearer is wounded and is freshly bruised and battered besides.

Marian waited, white and tense, while he dragged the Martian to where she stood. Pete dropped him in a bloody heap at her feet, then looked up at her with eyes dull and lifeless, jerking out his words in gasping, tired voice:

"Here he is, Marian. You . . . can have him . . . if . . . you want him."

After which Peter Canfield sagged and fell prostrate across the Martian's inert form.

The girl swept down over him like a mother-bird spreading wings for the protection of its young, stroked his swollen cheeks whispered anything into his unhearing ear.

Daniels threw up his hands in a gesture of resignation.

AN emergency call to Washington, put through as soon as Daniels got the radiophone in working order, brought a score of stratosphere patrol ships. They darted about overhead, their lights twinkling like a swarm of fireflies.

Two of them landed, a Federation police ship and a hospital ship. Boris and the Martian who had been locked in the cellar were taken away, a thoroughly beaten and cowed pair. Boris would never look the same; after Pete's handling of him all the plastic surgery of the planets would have availed little toward restoring his altered features. Certainly his lady-killing propensities would be handicapped seriously.

Indeed, it seemed unlikely that he would again have opportunity to indulge these propensities. He was to be returned to Mars by the next space liner, and, in view of his performance after his arrest, it was expected he would have short shrift at the hands of his own kind.

For several hours the ether was hot with code spaceograms. At first the Canal Cities Union of Mars disclaimed all knowledge of the plot, requesting that Boris be summarily executed. Boris showed his colors then, flying into a rage and revealing the hiding place of his own papers. That brought the Union to terms, since the Federation had proof of Boris' authorization for his nefarious work, in addition to many Martian war-secrets such as that of the paralyzing gas. They likewise had recovered the plans of the Daniels apparatus made by Boris' engineers. The inconceivable horror of interplanetary war was no longer imminent.

Boris had sealed his own fate. The Union's demand that he be returned to Mars a prisoner was readily, in fact cheerfully complied with. It relieved the Federation authorities from further liability.

Pete Canfield refused to be moved to a hospital. This old house just suited him for a convalescence, he averred. Bert, grinning, told the doctors it was the nurse and the privacy he craved. Marian, her beauty heightened by the ensuing flush, shooed Bert from the room where they had Pete propped up on clean white pillows, and slammed the door.

But the doctors came out smiling. Pete's wound was not at all a dangerous one, they agreed, even though the expanding slug from the Martian weapon had done considerable damage. His other injuries were superficial. And certainly, they could prescribe no tonic more effective than this girl.

DANIELS was packing his laboratory equipment with a far-away look in his eyes. After several efforts to draw him into conversation. Bert gave it up; already the scientist's active brain was at work on his next series of experiments.

All of which was as it should be. The only regret Bert had was that he had not seen the fight in the space car. Pete would never talk about it of course, but it must have been something worth seeing. To crawl along the landing gear struts of a speeding ship, to wrench open the entrance port, to yank the pilot, a husky Martian, from the controls and beat him to a pulp—*that* was a feat. To do it in a plunging, reeling vessel entirely out of control, then to prevent that vessel from crashing—*that* was a miracle.

Having visualized it mentally, Bert grunted contentedly, then wandered out into the brambles to see whether his own little aircab might not be patched up and made to fly. The others might do as they pleased; *he* was going back to civilization; back again to the world of his own people.

THE END

What do you know?

1. What poems in true metrical verse written in the ninth century, B.C. can be cited? (See page 7.)
2. What rock sculptures antedate the incomplete colossal carving on "Stone Mountain" Tennessee? (See page 8.)
3. What is the correct name of the flying reptiles of the Mesozoic Age? (See page 15.)
4. In setting a course for Mars, should the space ship be pointed directly at it? (See page 24.)
5. What are the rings of the planet Saturn composed of? (See page 25.)
6. Did the ancient civilizations of South America originate with the Incas? (See page 52.)
7. Where may we place their predecessors? (See page 52.)
8. Is there any possible "Atlantis" theory of the introduction of ancient civilization into the Andean region? (See page 52.)
9. What is a punah? (See page 54.)
10. What is a mesa? (See page 55.)
11. What is a quebrada? (See page 55.)
12. What theories are there about the ancient Andean inscriptions? (See page 64.)
13. Can you express a theory relating to the static trouble in radio reception, as affected by volume? (See page 73.)
14. How may the two limiting distances of Mars from the earth be approximately expressed? (See page 76.)
15. What phases in the motions in their orbits of the earth and of Mars determine these distances? (See page 76.)
16. Give an example of what time might be needed in radio communication with Mars? (See page 80.)
17. Calculate the distance of the planet at the time the story refers to, taking the velocity of light at 186,000 miles per second. (See page 80.)
18. What power has been attributed to rays emitted by the cornea of the human eye? (See page 116.)
19. Can you give any suggestion of a way to abolish light? (See page 125.)

The Molecule Trapper

By FLORENCE MATHESON

BELL laid the brick upon the low glass slab, and his deft fingers attached an electrode to each end of it. Slipping an asbestos pad under it, he stepped back and threw a switch on a bakelite panel. A low, humming sound came from what I judged to be an electric motor, and a yellow light from a lamp over the glass slab focussed a ray over the brick. Even as I watched the strange proceedings, I sensed the incongruity of that object in the midst of the glistening array of apparatus. My eyes, growing used to the bright light, could notice nothing at first; then I thought I observed a movement along one side of the brick. I drew my gaze there, and by comparing it with its background, assured myself that it had really moved. But as I looked, the same phenomenom appeared on all sides of the brick, and I realized that the brick was shrinking.

As I looked, utterly startled, the light grew brighter as the brick grew smaller, and the hum of the motor grew higher in pitch. The smaller it got, the faster it shrank, and the two electrodes moved toward each other more and more rapidly, the brick between them. When the object was the size of a domino, the light from above seemed to fairly radiate heat, and I became unconscious of everything but that splotch of light.

Finally, the two electrodes were pressing together, and I knew that the brick was somewhere between them. Suddenly the hum stopped, and the light flashed back to its normal yellow color.

Bell muttered beneath his breath, and threw a switch back into place. Pulling the electrodes out of the way, along with the asbestos pad, he examined the surface of the slab with a reading-glass.

"No; I can't see it this time," he said, "but last time, I could see the hole."

"See what?"

"Just the place where it sank through the glass."

"That little thing sank through the glass?"

"Surely. You know of course, that it weighed the same when it was small as it did when it was large; and the slab couldn't support it."

I didn't know, but I nodded my head. He went on:

"Are there any questions you would like to have answered?"

"Only about seven dozen. First, what is the light for, and why won't an electric light of the usual type do?"

"Well, the usual type *would* do—if I wanted it to light my work. But that one focusses a ray of heat upon my subject, in this case a brick. You realize, of course, that as that brick shrunk, the molecules composing it shrunk together. This produced cold of such bitterness, that, to guard against disastrous results, I maintained a constant temperature.

"One of my early experiments showed the principle. I placed a small crumb of bread upon the slab, affixed the electrodes and increased the size. The crumb grew, and in a short time, was the general shape and size of a sponge.

There was simply no substance to it —it was honeycombed unbelievably. When it reached the approximate size of my head, it burst into flame and was consumed immediately. It is interesting to realize that that large piece of substance contained exactly the same nourishment as the small crumb it came from. It would also weigh the same—in fact, if it had grown much larger. I believe it would have floated off from the slab into the air. You see, to accommodate that large bulk, the molecules composing it had to get farther apart, and this produced heat enough to burn it. Rather interesting eh?"

I hastily agreed with him but began to wonder just what practical use the machine had. When I spoke to him about it, a far-away look came into his eyes, and I realized I had touched his weak point, or more truly, his strong point. He said:

"Ever since I saw through the difficulties of construction, I have worked with one aim in view. I would like to enlarge a molecule to the size of an egg."

This caught me unawares, so to speak, and he saw the look of incredulity in my face.

"OH, I have but one problem to contend with;" he shrugged his shoulders; "aside from that it would be easy. If I could but catch a molecule upon some object that I had control of, my problem would be solved. I would merely have to enlarge the object to its regular size, and the molecule would have to grow with it. But I have not yet created an object light enough, so that when I shrink it into a microscopic size, it would not go sinking through its base. But I will, sometime."

And he did, too. A few weeks later he called me into his laboratory and silently placed a metal ball, the size of an orange, in my hands. From his hilarious manner, I had assumed that he had solved his problem, but I was not prepared for the metal soap-bubble that I received. It lay in my hands with the weight of—I can compare it with nothing, for nothing is as light. I tossed it into the air and it floated gently down and lit softly on the floor.

Bell took no notice of my questions, though I could see he was gratified at my reception of his creation.

"It's a nice solution to my problem, isn't it?" he asked. "Made of the lightest, toughest alloy I could find, filled with helium gas, and braced from the inside to give the most possible resistance to pressure. Try bending it."

I cupped it in my hands and squeezed it with all the force I could command. It felt solid as a rock. Taking it from my hands, he brought out a can, and proceeded to give the brass-colored ball a thick coat of heavy glue. He spread the stuff on all over, till there was a full half-inch of it on; then he affixed to it the electrodes of his machine.

"Now you will see at least an attempt at a miracle," he said, and reached up for the switch. However, the heavy glue on his fingers caught a companion switch, and carried it with the other. As a result, the over-heavy load on the wires blew out a fuse, and I saw my chances to witness the experiment fade and vanish. Bell was afraid some of his more delicate apparatus might have been injured, and postponed the operation till later in the day. Seeing that I could be of no assistance, I left, after agreeing to the hour of our next meeting. Before I left, however, the scientist warned me that whether or not I was there at the time, he would carry the experiment to completion, or "die trying."

The rest of the day I could no nothing but think of my friend's experiment. It seemed illogical enough, and yet, the

whole affair was illogical—and true. It all seemed to depend upon whether, when the ball was enough reduced in size, a chance colliding molecule would imbed itself in the covering of glue and stay there as the ball regained its former size.

The hour of my appointment drew near and finally arrived. I boarded a taxicab and was soon on my way to the brick building to see a molecule caught.

AS luck would have it, a tire blew out when we were about half way to our goal, and I sat and watched the hour of our meeting drift dangerously near. As I waited for the repair, I ran over in my mind the principal facts of the operation. The cleverly contrived ball, made light with gas, shrinking smaller and smaller, until it passed out of vision. I jerked up in my seat in horror. My watch said I had two minutes to save Bell's life. I grabbed a bill from my pocket, threw it at the driver, and sprinted up the street as fast as my legs would carry me.

My destination was only a few blocks away and I believe I made it in nothing, flat. I reached the ivy-covored building, stepped into the lobby, and breathed easier; I had triumphed, I thought. But as I turned around, a terrific force caught me in the back and hurtled me to the floor as an ear-breaking noise reached me. I felt the building shake and sway, clung to the floor for one awful moment as I sensed my danger if the room should collapse, and knew my friend was dead. When I escaped from the débris, I saw that the building was almost entirely wrecked, but, as I found out later, Bell was the only fatality.

The matter stayed on the front page for quite a time, but no one who was examined knew anything about it, and I preferred not to tell. And yet the cause of the explosion was simple, and Bell would have perceived it if he had not thought so deeply of the matters causing it. The truth was that his lightweight ball was a deadly bomb when used as he had used it. He had placed it upon the slab, attached the electrodes, turned on his power, and bent over the light. The ball was shrinking, and the light was growing brighter. Smaller it grew, and smaller, and reducing the inside volume—space that contained gas. Bell assured me that the ball could withstand an enormous amount of pressure, and this gave me the reason for the tremendous strength of the explosion. Probably the ball had shrunk to the size of a pin-head, or even smaller before the gas had been compressed enough to burst loose with the fury it had. It must have looked innocent in that light—a tiny bead of metal too small to pick up with the fingers—but it was strong enough to blow apart the building, when it reached a certain limit of compression. I remembered his last words to me:

"I'll get that molecule or die trying."

He did not get his molecule, perhaps, but he got his alternative, received the sad alternative, his sudden death.

THE END

DISCUSSIONS

In this department we shall discuss every month topics of interest to readers. The editors invite correspondence on all subjects directly or indirectly related to the stories appearing in this magazine. In case a special personal answer is required, a nominal fee of 25c to cover time and postage is required.

A Criticism of Life Everlasting and a Tribute to the Story and Its Author—A Response from Dr. Keller

EDITOR, AMAZING STORIES:

It is obvious from the perusal of Part One of Dr. Keller's serial "Life Everlasting" that the wish has been papa to the thought as regards a universally beneficial serum (administered intravenously, of all things), equally curative in bodily and mental ills. There is a good deal of method to the learned doctor's theoretical madness, nevertheless. It embodies the recognition that the cure of disease is to be found in the study of bodily processes, not in the application of extraneous drugs, the majority of which is useless. *Vice versa*, the contention that a healthy body shall automatically harbor a sound mind, is carried to an absurd end. Cured lunatics and harlots do not turn into angelic creatures in a month's time. Disease and poor social environments do not "befall" people blindly, but are necessarily and justly conditioned by the commissions and omissions of individuals in this life, or (if one chooses to give credence to metaphysics) in former incarnations. Pardon my digression, medical science does not recognize any such thing as "reincarnation" as yet, though the two are very well compatible.

Real progress in medicine shall be derived (within the next ten years) from the study of the mechanism of enzyme action in the body, particularly the groups of peptic and trytic enzymes (present in analogous form in vegetable cells as well), and from the knowledge of the true function of the amoeba called leucocyte. Then the treatment-end (therapy) of modern medicine shall catch up and keep step with the marvelously accurate diagnostic means of present-day medical science. Even then, it shall not be the same serum applicable in all forms of physical disease (bacterial, chronic malignant).

Three cheers to Dr. Keller for presenting the still vague, remote principle of forthcoming cures in a plausible, eminently readable form. Indubitably Dr. Keller knows vastly more than he could possibly incorporate into a short story. All due credit to AMAZING STORIES for publishing a story of this calibre.

It is startling, moreover, its thesis is probable,—indeed, not too vague and not too remote.

Ernest M. Smola,
73 St. Marks Place,
New York, N. Y.

DEAR EDITOR OF AMAZING STORIES:

I have read with much interest the above letter which seems to take exception to my "Life Everlasting" on the grounds that it is improbable. It is interesting that fans will read interplanetary tales and never raise this point of improbability and yet in another science-fiction story raise such an issue.

First I should state that the story is purely science-fiction. There was no intention to make it anything else. If it was so written that the average reader felt that it was *almost fact* then that is a *compliment to the style.*

Every scientist lives in the hope that some day a serum, which will cure the ills of mankind, will be invented or discovered. Of course a medicine which will be a panacea would be still more wonderful, because it would make unnecessary differential diagnosis.

Prolongation of life would result from the abolishment of disease. Just what causes death outside of accident is at times hard to determine, but if there were no disease the possible length of life would be at least greatly prolonged.

In writing the story I was more interested in studying the reaction of society to a life free from disease, than I was in other phases. The story is scientific from the sociological rather than from the medical point of view. For years I have felt that crime of all kinds was a disease or the result of a disease and that sin and punishment should not be used but instead the words symptom and treatment. It was therefore natural for me to imagine the taxi hall dancer cured of her immorality to the same degree that the heart case was cured of his cardiac symptoms.

Having worked with the abnormal for nearly twenty years I realize that the change which took place in the immoral girl was perhaps science-fiction of the highest type, but she was sick and if the serum cured one form of sickness it cured all, and that was all there was to it.

The reaction of society to a world free from disease! A good world in every way! The people should have been happy but were they? That was the question that had to be settled. A childless world—what was it like? A deathless world, clean, nice, golden people with lots of leisure and everybody living up to the Golden Rule. The inventor pleaded with the women to let matters be as they were, *but the women were starving for children,* no matter what it cost them. Perhaps Mr. Smola would have written a different ending, but I have more

children to my science fiction tales than all other writers in America put together, so my women had to have children and the Rosey Dawn had to become once more the Purple Flash.

The world is slowly growing better. I hope that in some way the vision of a clean world given in "Life Everlasting,, will help this onward movement. It was not written as a sermon, but in some way it does give a vision of a better life that is possible to all of us.

David Hfl Keller, M. D.,
Stroudsburg, Pa.

No More Edgar Allan Poe for a While—A Baseball Nine of Our Authors

EDITOR, AMAZING STORIES:

I am glad to see an issue of A. S. without Edgar Allan Poe on the "Contents Page." Is it possible that the readers' pleas have been heeded? I sincerely believe, and hope, so. Also, I am praying that *Measuring a Meridian* is the last appearance of Jules Verne between the covers of "The Aristocrat of Science Fiction."

Bob Olsen kept up his standards in "The Four Dimensional Auto-Parker," in parts, a truly humorous tale. How about the sequel to "Peril Among the Drivers?" Are we going to have one, or not?

Well, here's my All-Star baseball team for AMAZING STORIES:

Olsen, 1B. Keller, R.F. Merritt, L.F.
Kline, C.F. Burroughs, SS. Lovecraft, C.
Starzl, 2B. Williamson, 3B. Hamilton, P.

Some team, eh? I'll bet that a better one cannot be picked, if none of the above are used.

Wishing you the best of luck, and continued success,

Alvin Earl Perry,
Box 265,
Rockdale, Texas.

(We have no sequel on hand for "Peril Among the Drivers," but there is no telling what may happen. It would be interesting to get your All-Star baseball team on the diamond with the three fielders backing up the inside diamond players. Bob Olsen certainly has the knack of producing humorous stories of a type that reaches our readers.—EDITOR.)

The Question of Serials in AMAZING STORIES—The Four-Page Editorial

EDITOR, AMAZING STORIES:

The July AMAZING STORIES cover was very good.

The same goes for the Editorial. Keep it that length.

"Life Everlasting" from what I've heard, is Keller's best story. I wish the months would fly by so that I could have all the installments in my hand, to be read in one sitting.

Haven't read the "Lost City" yet. It promises to be pretty good.

"Measuring the Meridian" I hope will justify the four months' wait.

"Beam Transmission" was excellent. It was well told and very interesting. Stories like that do manage to slip in here and there. This seems to be the author's first story. Let us hear more from him.

"Four Dimensional Auto Parker" was likewise excellent. Bob Olsen's Four Dimensional stories are the most interesting and best related of that kind. His humor and wit are admirably interwoven throughout the entire story.

"Roadside Strategy" was O. K.

Again AMAZING STORIES has make a mistake. Why must there be three serials in one issue? Two are plenty! Do you realize that there were only two stories complete in the issue, not counting "Roadside Strategy." Just think how the reader feels when he pays the 25 cents and finds only two stories complete. If the magazine came out every week, there would be a good reason. Even if you are overstocked with serials, pity the reader.

May I repeat; *two serials are the limit!*

Raymond Peel Mariella,
5873 Woodcrest Avenue,
Philadelphia, Pa.

(We appreciate your remarks about AMAZING STORIES. Our plan is to keep the editorial at length of four pages and not to abbreviate it. "Life Everlasting" is, in our opinion, about the best story that Dr. Keller ever wrote. The three serials in one issue was not exactly a mistake, but it was one of those things which seems to come about by accident. Our own preference, if we can manage it, would be to have one serial in each issue, but the trouble is that there are long stories to be taken care of and these have to be split up. So to carry out your own words, we will try to "pity the reader."—EDITOR.)

An English Correspondent Writes an Appreciation of Our Magazine

EDITOR, AMAZING STORIES:

Although I have been reading AMAZING STORIES for over two years now, I have always had to get my copy four months late. Of course the price was only eight cents for the big size and six cents for the new and smaller size, so imagine my delight yesterday when I saw in one of the bookstalls—AMAZING STORIES—*British Edition*—1/6 (32 cents). I immediately bought a copy and found that "Triplanetary" the serial I had seen in my latest issue (December, 1933) as due to soon appear in A. S. was well under way. I have now put a standing order with this bookstall, viz. one copy of AMAZING STORIES every month.

I haven't finished reading all the stories in the March issue, but here's my choice for the December, 1933, and November, 1933, issues. 1. "Time's Mausoleum," fine. Give us more Professor Jameson stories. 2. "The Four Dimensional Escape," very good, quite humorous in parts. 3. "The Beetle in the Amber," O. K., amber is certainly something new to write about. 4. "The Battery of Hate." 5. "The

Strength of the Weak." 6. "The Whisper of Death," (I don't think this was quite as good as some of Vincent's work.) 7. "Into the Meteorite Orbit."

All the stories in both issues were good so I'll close now and hope you will continue with the good work.

—and keep that British Edition going—

L. Sutcliffe,
3 Ballantyne Road,
West Derby, Liverpool, 13,
England.

(It is a pleasure for the Editor of AMAZING STORIES to know that it has acquired a place among English readers. On this side of the ocean we always feel that the critics of the English Island are apt to be severe upon Americans—our more abrupt manner of address seems to grate upon them, but we may say, with the school boy, that we mean no harm. We sincerely hope that you will continue to appreciate our efforts, and we can assure you that it requires effort, and a lot of it, to put out AMAZING STORIES.—EDITOR.)

A Very Nice Letter from "a Person of the So-Called Fair Sex," as the Writer Puts It

EDITOR, AMAZING STORIES:

In the year that I have read A. S., I do not remember reading a single letter by a person of the so-called "fair-sex"; so here goes:

This is my first letter to this Department and I hope it will be printed in the next issue, (this is for a purely selfish reason too).

By all means keep Morey painting covers.

My preference of stories is interplanetary, but, nevertheless, can't we have more of Milton R. Peril and his stories like "The Lost City?" also George Scheer, Jr. and Bob Olsen? Peril's "Lost City" and Olsen's "Peril Among the Drivers" rank high, in my estimation. Can't we have more light, comical stories by Bob Olsen such as "The Four Dimensional Auto Parker?"

Best of Luck for A. S.

Edith Norcross,
2509 Indiana Avenue,
Box 417
Owens, W. Va.

P. S.—I will appreciate correspondence from A. S. readers.

(We are at once proud and gratified to say that we have received a number of letters from members of the fair sex and we find them always very pleasing, so we shall hope that this, your first letter, will not be the last. Our authors stick pretty well to us, so we think that you will get what you want in the near future. Write us again whenever the inclination comes your way.—EDITOR.)

A Junior Interplanetary Society Suggested and Correspondence Requested

EDITOR, AMAZING STORIES:

I think that the younger readers of AMAZING STORIES would be interested in this. I believe that it would be a novel idea if we younger readers would organize a society called "The Juvenile Interplanetary League." This society would follow the ideals set forth by the Senior Interplanetary League and try to promote a general interest in science among the younger generations. Any person under 16, of both sexes, and from any part of the world is invited to join. All applications should be sent immediately to me. Any suggestions that you may care to offer as to the means of conducting the organization, should be sent with your application. There will be a general election of officers as soon as enough members are acquired. Dues, if any, will be settled by your letters. Should a club newspaper be formed, every member will receive a copy immediately, and any person having the means to print a paper at a low price should state that in his application.

In closing, may I state that I sincerely hope that this letter will be printed and the responses will be many.

Herman Miller,
1507 Eastern Parkway,
Brooklyn, New York.

(We hope that this publication of your letter will yield results. We have always taken an interest in societies which have been instigated in any degree by AMAZING STORIES so that naturally we are very glad to publish your letter. —EDITOR.

Short and Comforting Is This Letter—We Need a Few Such

EDITOR, AMAZING STORIES:

Following, is a report on your June issue:

"The Lost City"—the best story in the issue.

"Subjugating the Earth"—an unusual story—very good.

"Hastings—1066"—Well—shall I say—worn-out plot???

"Peace Weapons"—very cleverly done.

"The Choice"—good.

"Measuring a Meridian"—I don't like it—I hadn't better say anything about it—there are too many who would like it.

Cover by Morey, there is no one as good as he.

Now, in conclusion, let me say I believe you, Mr. Editor, have the *Finest* magazine in the field—need I say more??

J. H. Hennigar,
East Tawas,
Mich.

(All we can say about your very appreciative letter is that we certainly consider such criticisms as yours of value to us and we only wish that we received more of them.—EDITOR.)

Notes on Stories of Time Travel—Correspondence on Science Topics Asked for by an English Reader of AMAZING STORIES

EDITOR, AMAZING STORIES:

As an old reader of AMAZING STORIES, may I express my appreciation of its fine stories.

I particularly enjoyed the "Beetle in the Amber" also "Terror Out of Space." "The Time Jumpers" was excellent, but the author evidently does not fully understand the time travel theory. Time travel is only possible if time is a dimension, and it is only logical that it would be equally possible to travel forward or backwards exactly as in three dimensional travel. I hope you will print many more time travel stories. I shall be glad to hear from any of your readers who are interested in time travel or psychology.

Wishing your swell magazine every success,

W. Sweetman,
76 Pevensey Road,
Eastbourne, Sussex,
England.

(We are glad to get an explanation from one of our readers of the perplexing theory of time travel. Do you not think that the best thing to be said about it is what the boys said about the elephant—"There ain't no such animal?"—EDITOR.)

J. M. Walsh Is the Real Name Corresponding to the *Nom de Plume* You Ask For—The Question of the Rate of Motion of Ados

EDITOR, AMAZING STORIES:

I was glad to see my second letter published in the May issue. I have already made two pen-friends by the publication of the first.

I wish to apologize for my rudeness *re* the Interplanetary Question, but at my age I am afraid one is liable to make a fuss over other people's opinions. I have come to the conclusion that it isn't worth while bothering about other people's opinions on such subjects and on stories,—everyone has a right to his own opinion.

Thanks for clearing up the question of the author of "Terror Out of Space." But which is the *nom de plume?* As J. M. Walsh, he is the author of a great many books of fiction, which have been published in this country. By the way, how could Ados be kept hidden behind the moon all the time? The further away a satellite is from its primary, the slower it goes. To keep up with the moon and to stay behind it, Ados would have to move faster than the moon. Otherwise it was a good story.

Now for the other stories: "Triplanetary" (Part III and IV) as good and better than the first two parts. "Peril Among the Drivers," quite a good story, although not the type I like. I prefer Bob Olsen's Fourth Dimensional stories to his Ant stories. "The Man Who Stopped the Earth," good. "A Job of Blending," clever. "Ms. Found in Bottle" I did not like. I would prefer more modern reprints. By the way, I would be glad if you would go back to the old system of numbering the pages and I don't like the new arrangement of the contents page. "Cat's Eye"—very good. "The Mentanicals," very good. "The Gold-Bug," I have read too many times before.

Re the British Interplanetary Society, I have joined the same as I strongly believe in the possibility of interplanetary travel.

"The Lost City" was very good. "The White Dwarf" was very, very good. The other stories in the May issue were fair.

Philip Hetherington,
"Tycoolt," Southwaite,
Carlisle, Cumberland,
England.

(There is much philosophy in the first paragraphs of your letter. It was so good a point in a story to picture a satellite of the moon perpetually hiding behind it, that we think we might easily forgive the stretching of the law of centrifugal force and of gravitational attraction to keep Ados out of sight. We think it would be rather a puzzle to definitely calculate the effects of solar and lunar attraction upon the bashful planet, or rather satellite, Ados "seeking the seclusion that the moon grants." Invisibility stories are always very attractive if properly carried out, and our author certainly has succeeded in doing this. The readers of Discussions, we are sure, will notice that these two letters are from England. We are very glad to have English readers and appreciators of our work.—EDITOR.)

A Short and Severe Criticism from Dr. Smith—Notice the Address, "Rippon Ave."—He "Rips Up" the "Terror Out of Space"—An Answer from the Criticised Author

EDITOR, AMAZING STORIES:

Who checks up on the alleged science in AMAZING STORIES, and how?

First, about the orbit of Ados, in "Terror Out of Space." That idea was utterly preposterous the first time it was used, and the oftener it is copied the worse it gets.

Second, you particularly recommend "The White Dwarf" to readers of Jeans and Eddington. Why? A casual inspection of Burtt's so-called "science" shows that it does not agree with even elementary mechanics, and that his force is directed somewhere between 88° and 92° in error.

Edward E. Smith,
33 Rippon Avenue,
Hillsdale, Mich.

(We leave the comments on this letter to the author of "The White Dwarf."—EDITOR.)

A Reply to Dr. Smith's Criticism of "The White Dwarf" by the Author

EDITOR, AMAZING STORIES:

I appreciate very much your giving me the opportunity to reply to Dr. Smith's criticism of "The White Dwarf." I seem to be getting into the hands of the critics somewhat considerably lately, don't I? Still I must say that I was rather surprised at getting such a criticism from a brother author—I rather thought it was contrary to the amenities of the profession for one author to criticize another in a "Letter to the Editor." Still, since Dr. Smith has started it, I'll be "tickled to death by little red spiders!"

to come right back at him, so here goes!

I notice that he goes to the trouble of picking out a very minor point (the direction of the orgiinal thrust), stating baldly that I am wrong, making caustic and sardonic comment on my mechanics, and then failing to support his contention by any shred of proof. Now it's up to him to produce evidence of his contention, for I can assure him that my statement is by no means so wild as he supposes. Still, I will give him the following points to think over.

1. Problems in celestial mechanics are always complex and their results often differ greatly from those which *appear* correct on the surface.

2. Sanderson could only use the moon as a 'thrust-block' for a very few days, and only when it was on the side of the earth's orbit remote from the sun—i.e. when it was approaching or leaving the full.

3. I was careful to state that the moon was *near* full, *not* at full.

4. Since the earth was to be driven towards the sun the thrust must have a large component in that direction.

5. In order to gain the advantage of thrusting against the moon Sanderson must necessarily take the moon where he found it and adjust his 'optimum' directions accordingly.

6. The exact direction of the *first* thrust is a matter of opinion to some extent, especially as the earth could be 'steered' throughout its entire journey.

7. Both Dr. Smith and I are writing science-fiction, and not text-books on mechanics. Hence the criticisms, even if it had been justified by facts, is rather feeble and pointless.

Now, having given Dr. Smith something to chew on, I'm going to say a few kind words about his own science.

I'll admit at the start, that he writes a very readable yarn, which after all is the main thing (I usually read his over a couple of times anyway) *but* if my mechanics is haywire, what about his physics? Let's take just a couple of points:

1. Dr. Smith has a penchant for building space-ships that travel at speeds incalculably greater than that of light. Does he not know that modern investigation (see Fitzgerald, Michaelson, Einstein, Eddington, etc.) has definitely established that the mass of a moving body increases as its speed (relatively) increases and that at the speed of light that mass becomes infinite (this whether one accepts the relativity theory or not). Now if this speed be exceeded, the mass (whether inertialess or not) must *exceed* infinity. How come Doc?

2. Regarding the *possibility* of inertialess matter we could argue for ever and each prove our own side to *our own* satisfaction, so I may as well concede that. (It's very useful in a story anyhow). But, talking of elementary mechanics, a body having inertia will, by the fundamental laws of motion, continue in its existing state of motion unless acted on by some external force (Dr. Smith knows this of course). Yet the worthy doctor has an inertialess ship that is traveling at a speed that even he does not dare to mention, and immediately the inertia is restored this ship *stops dead* in empty space. Surely the putting back of its inertia would not stop the ship, would it? The only effect it could possibly have would be that the ship would now continue its headlong career at its terrific speed, but *with* inertia—Then what? The possibilities are too appalling for me to figure out. I'd sure hate to be in one of those ships when inertia was suddenly restored at such speeds—wow! what a jolt we'd get from that mass-inertia thump!

3. How does Doc. Smith manage to navigate his 'infinite velocity' boats all over space without ever getting one of them bumped—they must travel blind. Is it luck, superhuman calculation, or just plain fiction?

There, let it go at that. I've got a list of a dozen or so other points that I could bring up if I could have the whole magazine to myself, but—

Now I detest long drawn-out discussions so, having had my say, I'll concede Dr. Smith the last word and then let our readers fight the rest out for themselves.

Before I close, since criticisms of authors by authors seems to be in order, I should like to ask Haverstock Hill how he makes the revolution of Ados fit Kepler's Law. As I understand it, the more distant satellite would have a longer orbital path and a slower orbital speed, which makes his hidden satellite exactly impossible. (Sorry, old son, but I just couldn't resist bringing up the point). I've seen the same fallacy used in other stories, notably in one that dealt with the increased rotation of the sun, engineered from Neptune's satellite (I've forgotten the name and author of the story).

Still, after all, 'to err is human,' isn't it, and I can't recall a single science-fiction author who hasn't made a few bad slips, not even Verne and 'H. G. W. the Great'—I've even ('tell it not in Gath') made them myself, one that I know of in "The White Dwarf" that Doc Smith didn't spot. No, I'm not telling, let Smith go find it out for himself.

Now I can only conclude this long-winded epistle by wishing Dr. Smith (and the rest of our fellow authors) the very best of luck, and to say that I certainly hope to read many more of his yarns yet.

J. Lewis Burtt,
Jessmond, B. C.,
Canada.

Brickbats in the First Portion Followed by Comfort in the Conclusion

EDITOR, AMAZING STORIES:

I have just finished reading the July issue and I was pleased to find only stories brought

back from the pages of history. Please, Oh! please, Mr. Editor, do not have any more stories from either Jules Verne or Edgar Allan Poe. There is only one story in this issue that I could not stomach and that—"Measuring a Meridian" by, of course, Jules Verne. Whoever wants to read something that is away over our heads? (Anyway we were taught that in school.)

Poe's stories are very good but most of us have read them all anyway. The story, "The Gold Bug" was plub. in all fifth grade readers. I read it then several times, but I did not want to see space in your book used up in this way. So please do not Plub. this type of story again.

In the July issue the first story, "Life Everlasting" was good fiction, yes, but we want Science-Fiction not every day fiction, we can buy this type of story anywhere.

Now, I have finished throwing "brickbats," I want to say that this S. F. mag. is the best on the market bar none. I think that we have the best authors and the best EDITOR. What do some of the readers want even edges for, as long as we get the best stories? What difference does the quality of paper make as long as we can read the print.

I suggest that you leave the out-side of the magazine alone just concentrate on the stories. Most of them are perfect but some can be improved upon.

Raymond N. Bennett, Jr.,
219 Commercial Ave.,
New Brunswick,
New Jersey.

P. S.—Please let us have more interplanetary stories. On the order of "The Triplanetary."

R. B.

(There was a specific reason, that we have already stated, for using some of Edgar A. Poe's stories. The one-hundred and twenty-fifth anniversary of his birth has recently been celebrated. We suppose that by 'plub.' you mean 'publish.' "Life Everlasting" was written by a leading physician and a high authority on psycopathy and there is plenty of science in it and very accurate science at that. Interplanetary stories are coming along.—EDITOR.)

Suggestions in Abundance for AMAZING STORIES —The Question of Cover Illustrations

EDITOR, AMAZING STORIES:

The stories in the July AMAZING STORIES are much improved compared with those in the last issue.

"Life Everlasting" is my choice for first place. I know that the most interesting part is yet to come.

Bob Olsen brings back old memories with "The Four Dimensional Auto-Parker." Remember his first story "The Four Dimensional Roller-Press" in the June, 1927, issue?

"The Lost City" ends quite well.

"Beam Transmission," the novelette, was fairly interesting.

If you want additional readers, why do you not have more colorful covers? Place a copy of the September, 1929, AMAZING STORIES besides the latest issue. Doesn't it show up much better? Wesso did a fine job on his first cover for us, but alas he was given but a few to illustrate. Look at the Oct., Nov. & Dec., 1929, and the Jan., 1930, covers. Now don't you truthfully think that they are much better than Morey's? Look at the block letter title, Doesn't it stand out nicely? Look at the names of the authors in large showy lettering, they told the world what famous authors wrote for the magazine. *Look at the large size.* No one could miss it on the stands. AMAZING STORIES wasn't lost among hundreds of other small size magazines then.

Cut out reprints. Think of the poor starving authors who are waiting to have their stories printed.

Jack Darrow,
4224 N. Sawyer Ave.,
Chicago, Ill.

(All we have to say about your criticism is that many expressed their appreciation of the smaller format of the magazine and we find on looking back over former issues that our cover pictures are well up to the standard of old times. Certainly some of the old covers were far from creditable. There is one thing that we have been very fortunate in carrying out, and that is the keeping of our old authors. Many of them have written for us for years and our readers certainly continue to like them. —EDITOR.)

AMAZING STORIES Has Not Changed the Paper It Is Printed On—We Think That Our Readers Want Fiction—The Editorials Give a Little Serious Matter

EDITOR, AMAZING STORIES:

After a lapse of about two years I have resumed the reading of your stories. What a change I found! Your magazine became smaller and degraded to a pulp magazine. Evidently the depression had its effect. Being somewhat affiliated with the printing of magazines I can understand its change.

While the physical make up of the magazine has deteriorated, its contents have not. But I do not think that the contents have improved.

I like the four-page editorial and believe they contain material suitable for a lecture for a college class.

I have been interested in chemistry and radio for a number of years and am always looking for science fiction about these sciences.

In your July issue I found "Life Everlasting" very interesting but it is my opinion that a panacea as described in the story is nowhere near possible.

The continued stories I did not glance at as I prefer the complete ones or the first installment. Thus I lost part of the 25c I paid for AMAZING STORIES. However, I shall

read them in future issues.

The "Four Dimensional Auto-Parker" was a good fourth dimensional story. I am a disbeliever in so far as the four dimensional theory goes. I contend that any of the analogies given do not prove anything. A fifth, sixth and even infinite dimension could be proven by these same analogies.

I wonder if there would be a sufficient demand for lessons in astrophysics, chemistry, etc., to be given in your magazine. I mean short simple lessons of a page or two in length so that they wouldn't interfere with those that didn't desire them.

I would like to correspond with readers of this magazine in countries other than the U. S.

Sam Greenspan,
212 Forsyth St.,
N. Y. C.

(We feel from the large volume of correspondence which we get that our duty is to supply our friends with fiction, not with dry science. Your letter is one of those which takes pretty good care of itself without any comment from us.—EDITOR.)

A Letter of Severe Criticism Yet Very Amusing—Our Correspondent Objects to the Stories Which Other Readers Like

EDITOR, AMAZING STORIES:

Just a little comment about the stories in the July issue.

"Life Everlasting" by Keller, my favorite author, bids fair to be a classic. Dr. Keller has a marvelous insight into human life and ideas. He makes no absurd attempts to create more action in his story by using unrealities; but he analyzes people's emotions and gives facts as they really should be given. If I were to edit a science-fiction magazine, I would make sure all stories would be as good literature as this one. Of course, my magazine would fail, because what you editors look for is that story which will make the reader of 12 or 14 years old intelligence (average) come back and buy your magazine again. I can see by the immediate and satisfactory (?) way you respond to readers' letters that you will go ahead and make your magazine trash in spite of all of our efforts to right this. However, I was glad to see starting in this issue a story that is really a credit to any magazine. Incidentally, "The Choice," by Maughan was the best story I have ever read in any science-fiction mag. I shall watch this author closely. I'm behind you, fellow!

"Four Dimensional Auto-Parker." I always look forward to a story by Bob Olsen. The name "Bob" used by an author is characteristic of this author's personality. Mr. Editor, your readers were hollering a while ago for humorous stories. Baby, take a bow—this is it. What I mean, *real* humor, subtle humor; not crazy trash like "When the Moon Moons." I never was so disgusted in my life as by this latter story. But this story of Bob's is a cheery story (in a rather weird background, as I will explain later.)

"Roadside Strategy." Science-Fiction??? I guess you call this science fiction because it has a radio in it, using about the same line of reasoning as the guy that calls some of Verne's and Poe's stuff science-fiction just because it was written by these famous science-fiction authors. Oh, I know what you'll say. "This story illustrates very cleverly the use radio is put to to aid civilization. This shows how science has aided humanity." Too true, *but* my dear man, in spite of this faint resemblance, it is not what your readers want, I am not so much of an addict of science-fiction but that I enjoyed this story from an ordinary fictional stand-point, for it was really well-written.

"Measuring a Meridian." Coises!! I didn't bother to read this story, but I will for the same reason as I read "Roadside Strategy." Keep Verne, Poe and other old fogies out. If you're going to give reprints give us good ones and by modern writers! I have never read "A Columbus of Space," and I have read more letters demanding this for reprint than any other story, so I hereby cast my vote for that one first. Personally, I sympathize with the old reader who doesn't want reprints, for he really doesn't want to read these stories again. By printing a reprint you are cheating him of a little of the price he paid for the magazine, while on the other hand the fellow who has never read this story will not miss it as long as he has an equally good one in its place. This reasoning is too logical to doubt. But if you must save money by printing reprints print modern ones. Don't tell me your best authors only allow you one print rights.

Your magazine will lose many, many readers by printing so many serials. Abide by that. Imagine a magazine with three long instalments of serials and two complete stories. That's AMAZING STORIES. Preposterous! Inconceivable!! and a few more delightful adjectives. If I were one of these bozos who didn't have enough money, so that he was scrimping to buy magazines I would drop this magazine because of serials. It means that either you buy the magazine steady or you get two lone stories for your quarter. That stirs up resentment among your readers. Consult Dr. Keller for the psychology of treatment of your reading public.

Your magazine has taken a rather weird turn lately; a turn for the worst. I noticed that beginning with the March issue a curious epidemic of destruction has struck your authors and office readers. For instance:

March: "Man Who Stopped the Dust" (pardon the mistake. That's the name of a story I liked in another magazine) "Man Who Stopped the Earth." Scientific experimentation brings about the destruction of the earth, total and unconditional.

April: "Cat's Eye." Explosion destroys the total population of Idilna, so the author said.

May: (et seq.) "Earthmen and Martians wipe out population of Ados. ("Terror Out of Space.")

June: "Subjugating the Earth." One lone, puny, insignificant, minute speck of humanity blows apart an asteroid, killing all the people. (Incidentally, a good story in spite of theme.)

July: "Lost City." Colony of Atlantis exists thousands of years; resists invasions of world; puts down rebellion of blacks; has science that can repair human flesh but cannot kill a man-eating protoplasm; and finally, waits until our hero arrives on the scene to come to destruction. What I am protesting against is the total destruction of the country and its people, but don't you think it was very obliging of them to wait until Mansfield got there to do it?

"Beam Transmission." Started out with a bang but ended up by killing off entire population of unknown planet. Waited obligingly for earth-men to get there to do it, too.

To get down to the point. Please, pulleeze, Mr. Editor, don't be so confounded blood-thirsty. If you must kill people off, at least indulge in intelligent moderation. For purposes of God knows what, I looked back in my files and found that you had to go clear back to the August issue, 1933, to find a story of this type, whereas now we have a veritable epidemic. Your magazine is becoming a blood-and-thunder type. Especially "Lost City." I about broke my neck trying to get closer to the page on this story and read faster, but do you think I would let any intelligent friend read this story. Absolutely not! For instance, look at all the blacks the man killed, a lot of them barehanded. Whoopee and a couple of yodels! Let's go wild west!

Maybe now that I've called this to your mind you will be a little more acute in judgment upon stories of this type.

Merciful Heavens! (Pardon the French. I'm not a girl really) I can stand decent, excusable English mistakes (God knows I make enough of them myself) but I cannot stand these perfectly self-evident and atrocious mistakes as made occasionally by Peril and especially by Gelula in 'Peace Weapons." Don't take it to heart, your authors I have mentioned specifically, for I am no authority, but be a little more careful. Remember, one of the finest signs of good-breeding is intelligent and good usage of the English Language.

Well, Ed., I'm about through. You don't have to print this in "Discussions" if you don't feel like it; at least not all of it.

What happened to "Tumithak in Shawm," by Tanner; "The Crime Crusher," by Olsen and several others promised to us *over a year ago?*

Well, here's best of luck to you. I'm a faithful reader and hope to send you my criticism of your magazine faithfully every month. (Did I hear the Editor groan?) Your magazine is good, almost as good as one competitor and better than another, but because I like especially the style of your writers, make AMAZING STORIES the best.

Phil Turner,
Hiram,
Ohio.

(We do not feel that it is our duty to apologize, but we are willing always to explain. The science in "Roadside Strategy" lay in the fact that kerosene alone will not drive a car. It is a great pity that cars cannot be constructed to burn kerosene, as it has a great many more thermal units in a given volume than gasoline. Gasoline is definitely a very expensive fuel. The Diesel engine owes its success and its application to steam navigation to the fact that it burns a fuel of high specific gravity, one which contains far more thermal units per volume than gasoline contains, so you see there is quite a bit of science in the story you complain of. "Measuring a Meridian" apparently contained more science than you could stomach. A very interesting point brought out in it was the measurement of a meridian from Dunkirk to the Balearic Islands. An editor of such a magazine as ours, has to learn one lesson—that "one man's meat is another man's poison." We are sorry that you find so much, of what you consider poison, in our stories. We hope you will survive. Your last paragraph certainly gives us some little comfort.

"Tumithak in Shawm" and "The Crime Crusher" appeared in AMAZING STORIES of June, 1933, over a year ago.—EDITOR.)

An Old-Time Correspondent Writes an Encouraging Letter—He Likes Our Stories

Editor, AMAZING STORIES:

I have been reading AMAZING STORIES for a number of years and have always found them my best friend.

I have just finished the May issue which calls for a vote.

"Terror Out of Space"—Very sorry to see the end of it.—Excellent work Mr. Hill. How about some more? eh! "The Lost City"—I'm lost in it. Please accept my simple but honest congratulations Mr. Peril. (Please hurry the next issue.)

That is all that held my interest to such an extent that for the first time in years I write about them, with of course the exception of "The White Dwarf" by J. Lewis Burtt, which was splendid. I would appreciate hearing from some of your readers, anywhere. I am 21.

Frank Mantle,
226a Ralph Avenue,
Brooklyn, New York.

(We have called this in the caption, an encouraging letter, and the Editor can assure you that, whether encouragement is really needed or not, it is very pleasant to get it. You speak of being sorry to see the end of a story. We can promise that you will be glad to see the beginning of some good ones soon.—EDITOR.)

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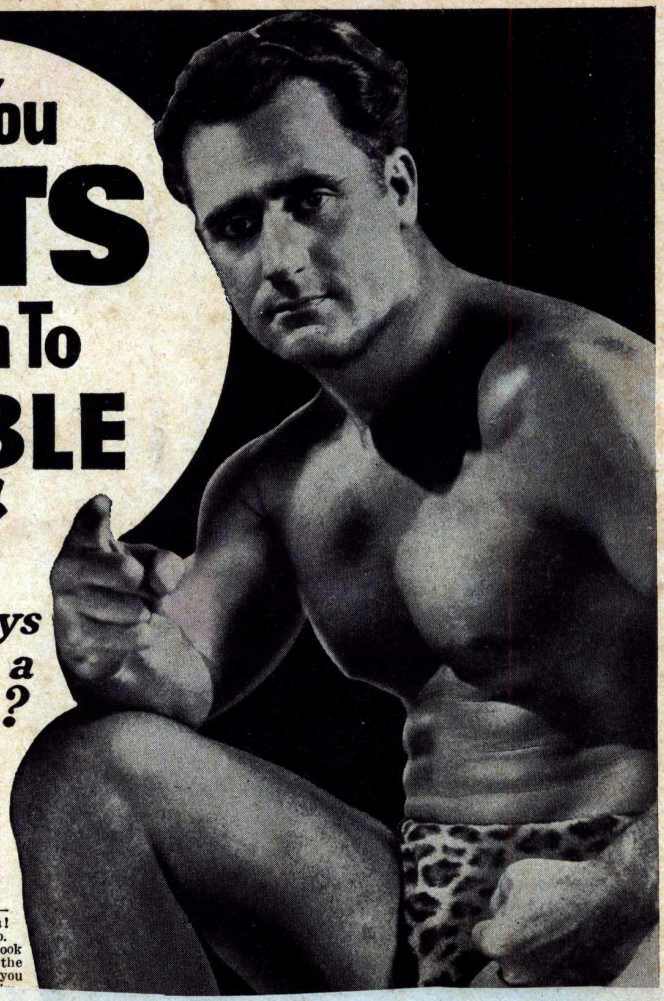

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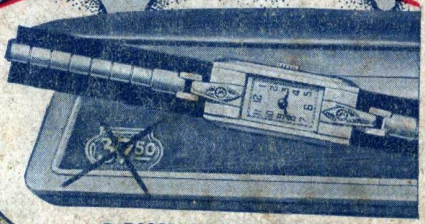

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